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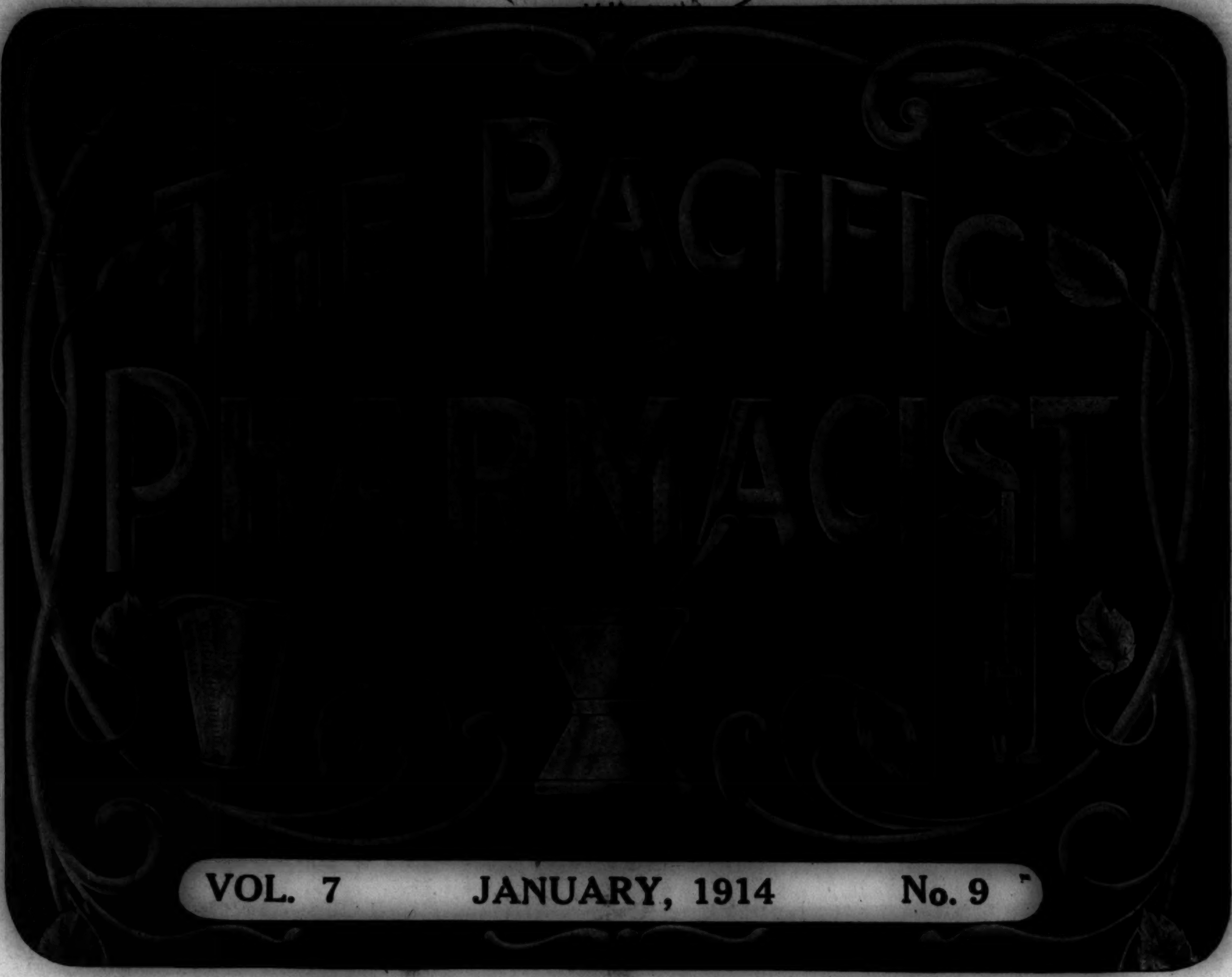

THE PACIFIC PHARMACIST

VOL. 7 JANUARY, 1914 No. 9

Published by GALEN PUBLISHING COMPANY

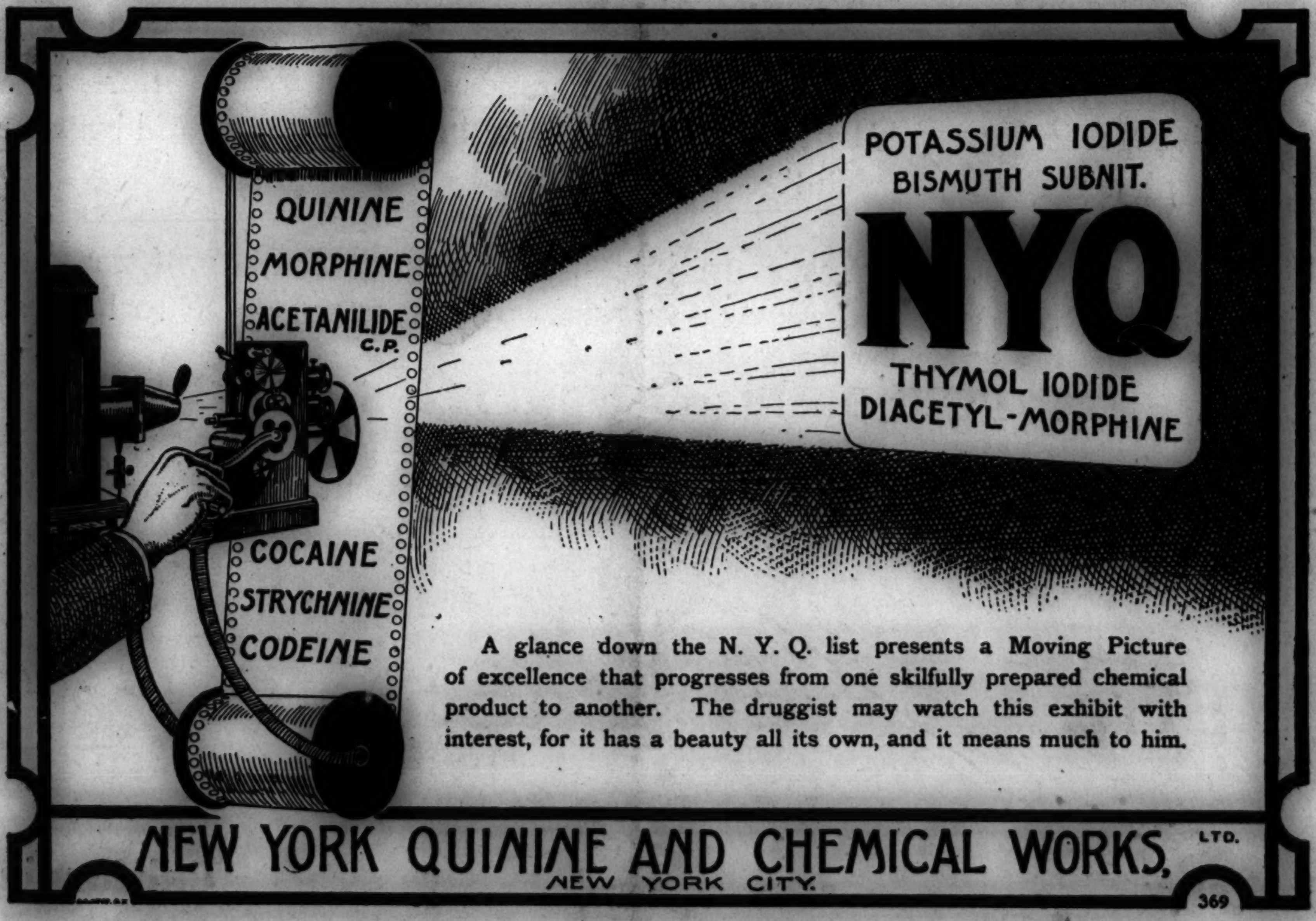

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TABLE OF CONTENTS

Vol. 7 **JANUARY, 1914** **No. 9**

Page.
EDITORIALS 215
Rural Sanitation 215
Query—Pacific Coast Pharmacists 216
Antivivisection Hysteria 217
The Change Wrought by Preventive Medicine 218

COMMUNICATIONS 219
Outline of Courses of Instruction in Colleges of Pharmacy (con.), by Albert Schneider 219
Exterminating Garden and House Pests, by F. Pilkington 229
A Striking Object Lesson in Heredity 231

SCIENTIFIC AND PHARMACEUTICAL NOTES 233
Overplanting Infected Areas with Harmless Germs—Cold Process of Soldering 233
Preservation of Simple Syrup—Distilled Water in Medical Practice 234
Sheep Used to Trap Spotted Fever Ticks 235

THE SODA FOUNTAIN 236
Crushed Fruits—Malted Milk (Horlick's) Drinks—Hot Drinks 236
Sundaes 236
Phosphates 237

(Continued on Page 5.)

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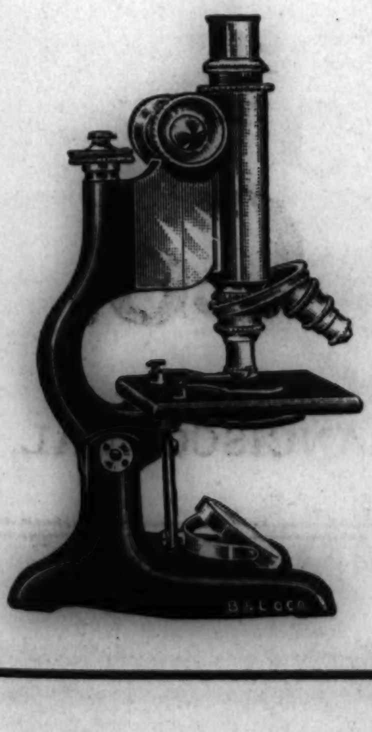

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TABLE OF CONTENTS—Continued

Page.

BOOK NOTICES 237

Water Bacteriology by Prescott and Winslow 237

Annual Report of the Secretary of Commerce—Payne's Dictionary of Pharmacy—E. Merck's Annual Report—Catalogue of the University of the Philippines—Phylacogen Treatment (Parke, Davis and Co.) 238

THE NEWS BUREAU 239

Chemical Exhibit at the Panama-Pacific International Exposition 239

Philadelphia College of Pharmacy 240

W. P. A. P. C.—Rural Sanitation 240

Tests for Adrenine 241

IT IS TO LAUGH 242

PERSONALS AND TRADE ITEMS .... adv. p. 11

INDEX TO ADVERTISERS .... adv. p. 6

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Index to Advertisers

Abbott Alkaloidal Company........ 6
Abbott & Co........ 12
Alcohol, solidified........ 14
American Druggists Fire Insurance Co........ 10
Barry, James H. Co........ 20
Bausch & Lomb Optical Co........ 3
Bed Pan, Searby's........ 8
Blakiston's Sons & Co........ 18
Bristol Meyer Co........ 12
Caire, Justinian Co........ 10
California College of Pharmacy........ 16
Coffin Redington Co........ 7
College of Pharmacy........ 16
Coward, M. 12
Crown Headache Powders........ 18
Cutter Laboratory, The........second cover page
Du Val & Co., W. M........ 4
Fay & Shueler........ 12
Fellows Company 10
Gastrogen Tablets 12
Glyco Thymoline 14
Haarlem Oil 12
Horlick's Malted Milk........ 9
Justinian Caire Company........ 10
Kniest, R. V........ 12
Kress & Owen Co........ 14
Labels, bottles, etc........ 12
Laist, H. R........ 8
Langley & Michaels Co........ 2
Lenox Chocolates 18
Mallinckrodt Chemical Works........ 5
Malted Milk 9
McVey 12
Microscopes 3
Morgan Co. 7
Mulford Company 15
Munn & Co—Patents........ 19
National Licorice Co........ 4
New England Confectionery Co........ 18
New York Quinine & Chemical Works, The........lower front cover
Parke, Davis & Co........fourth cover page
Patents 19
Periodicals 15
Pharmacy 12
Pharmacy Student 12
Powers-Weightman-Rosengarten Co........ 17
Printing 20
Republic Drug Company........ 9
Safety Razors 20
Sal Hepatica 12
Scott & Gilbert Co........ 11
Searby's Bed Pan........ 8
Soda Draught 13
Soda Fountains........ 14
Specialties 9
Sprague Law School........ 20
University California 16
Walrus Soda Fountains........ 14
Wampole, Henry K........ 1
Weck, F. A........ 18
White, R. E. 3

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Official Organ of San Jose Retail Druggists' Association
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EDITORIALS

RURAL SANITATION. Recently the University of the State of California sent invitations to the ministers of the state to attend certain agricultural meetings and conferences held at the State University, the idea being to acquaint the ministers with certain agricultural problems so that they might get nearer some of the farm problems, bringing together or binding the materialistically practical with the spiritual. The idea was not by any means a bad one, although it is not very clear to us how the good ministers are to bring together potato crops and soul salvation. Mixing the two strikes us as somewhat incongruous.

We feel that a subject of the greatest importance and one which is almost totally neglected by the State University, is a campaign to improve the sanitation of the rural home. Those who pay the taxes which maintain the University have a right to expect some return benefit. There should be a complete campaign directed against the dissemination of disease in the rural districts. Sanitary home building, care ot the body, methods to prevent the spreading of communicable diseases, water supply, sewage disposal, care of the sick, pure foods, pure and wholesome drugs, etc., etc., should be explained and taught in the home or in the community. This propaganda work could be carried out by means of lecture courses and by means of circulars. The influence of the medical quacks which reap such a rich gain from the rural districts should be counteracted. It seems to us that in this particular work the assistance of the pharmacist could be utilized. It should be the special duty of the country practitioners to advise regarding general preventive medicine and for the druggist to assist the physician in this work giving special attention to the use of medicamenta which are of unquestioned value in the treatment of ailments, and using every effort and influence to overcome the tendency to resort to the use of patent and quack remedies. It is in the rural districts where the medical frauds reap their harvest. What the farmer wants is some simple sound advice to steer him clear of the quacks and aid him in a better mode of living. The University should place this work in the hands of men who are competent by training and experience.

? We wonder why Governor Johnson has not yet appointed the new Board of Pharmacy. The time to appoint the Board was last July. The only thing to do is to wait a bit longer. We are sorely in need of a Progressive Board. A Progressive Board can do much to assist in elevating the status of pharmacy in the State of California. We need Board members that know what progressive pharmacy is and who have the courage and the necessary backbone to act.

The Governor of the grand State of California is known as a progressive true to type and we somehow feel that he will name such men on the next Board of Pharmacy as will act in conformity with the modern progressive tendency. A Board that will do all in their power to place the practice of pharmacy in the State on a par with the general educational status in California.

PACIFIC COAST PHARMACISTS. An opinion prevails among certain leading pharmacists in the Eastern United States that the pharmacists on the Pacific Coast are not sufficiently alive, that they are lacking in interest as far as the professional side of pharmacy is concerned. We are led to believe that these criticisms are more specifically directed against the pharmacists in the grand State of California. The special reason why these criticisms should spring up at this time is because of the fact that it was almost taken for granted that the pharmacists of the Pacific Coast would make strong concerted efforts, first, to establish several branches of the A. Ph. A. in the larger Coast cities, and second, urge upon the A. Ph. A. to hold the 1915 meeting in San Francisco. The A. Ph. A. met in San Francisco, has met in Los Angeles, has honored the Pacific Coast pharmacists by electing Prof. W. M. Searby president, and yet no branch association has been established. It is true that two years ago, or thereabout, efforts were made to create a branch association in San Francisco. Some enthusiasm was manifest and several meetings were held, but that is where it ended. The thing died "a-bornin'."

We admit all this and more. Up to ten years ago, the deadest objects on the Pacific Coast were the druggists. No public spirit, no professional interest or pride. Just a selfish devotion to trade, to sales and profits. It does look as though we were justly deserving of the black eye, as outlined. But let us take a second look.

California, Oregon and Washington each have a wide-awake State Pharmaceutical Association. Washington and Oregon have Colleges of Pharmacy ranking with the highest and best in the United States. California has two good Colleges of Pharmacy. Washington has one of the most progressive Boards of Pharmacy in the United States. While the California Board has thus far been opposed to progress, it has nevertheless been an active Board as far as hunting for contraband opium is concerned. Former President Taft saw fit to name one of the California Board on the International Opium Commission, namely, J. H. Finger of Santa Barbara. There are three pharmaceutical journals on the Pacific Coast, not including house journals. The Pacific Coast membership in the A. Ph. A., while not large, is nevertheless worthy of some respect.

Furthermore, the pharmacists of California and of the entire Pacific Coast want the A. Ph. A. to come to San Francisco in 1915. San Francisco is the only logical meeting place. We want them to come and we will extend the same hearty greetings and welcome as in the past.

We are certain that a heartfelt, strong, urgent invitation to meet in San Francisco in 1915 will be presented at the Detroit meeting in August.

Antivivisection Hysteria.

At the close of the year which marks the twenty-fifth anniversary of the founding of the Pasteur Institute, it is fitting to look back and with grateful appreciation to survey the incalculable benefits which have come to us through the labor of such men as Pasteur, Tyndall and Lister. We cannot here attempt an exhaustive account of all the triumphs that have come to medicine and surgery through the discovery of the bacterial origin of infectious diseases, and through the aseptic methods and antitoxin serum therapy based upon this discovery. We must be satisfied to single out a few of the most significant facts.

Let figures tell their eloquent tale:

Mortality Among Persons Afflicted With Several Diseases.

Disease	Before	After
	Introduction of Serum Therapy and Asepsis	
Rabies	About 16	Practically 0
Lockjaw	About 80	Practically 0
Diphtheria	About 30	About 8
Meningitis	About 80	About 20
Plague	5	0.4
Puerperal fever in hospitals	5 to 57	0.1
Compound fractures	67	Less than 1

Ex-President Taft in an address before the Medical Club of Philadelphia, on May 4, 1911, said: "Of the volunteer regiments mobilized during the Spanish-American War, 90 per cent. became infected with typhoid fever within eight weeks from the date of mobilization. To-day, two months after mobilization, with modern health regulation and the use of vaccination against typhoid, not one case of typhoid fever has appeared in the entire force, except that of one teamster, who was not vaccinated."

Regarding the ravages of yellow fever during the French Panama Canal enterprise, before the cause of the disease was understood, we quote from an article by Dr. Orenstein, as published in our issue of November 9, 1912: "The family of a French chief engineer consisted of five; four died of yellow fever. Of the five members of the family of the superintendent of the railroad, three died of yellow fever. Of twenty-five Sisters of Charity who came to Ancon Hospital, twenty died of yellow fever."

Contrast with this the following figures, taken from the American period of work, when the mode of transmission of yellow fever by the Stegomyia mosquito was known and precautions were taken accordingly: "From July 1, 1904, to June 1, 1905, 77 cases of yellow fever originated on the Isthmus. In June, 1905, 62 cases; in July, 42; in August, 27; in September, 6; in October, 3; in November, 2; December (in Colon), 1. During 1906 there was only one case of yellow fever on the Isthmus, in Colon. Since then not a single case of yellow fever has occurred on the Isthmus, although a continuous influx of non-immunes is taking place."

We would like to extend this list of triumphs further, but space is lacking, and there is another matter on which we wish to touch. We will introduce it by a few further significant figures:

Mortality Among Animals Afflicted.

Disease	Before	After
	Introduction of New Methods	
Anthrax:		
Sheep, on certain French farms...	10	1
Cattle, on certain French farms...	5	1
Distemper in dogs (Karl Hopf's kennels)	50	2
Malignant jaundice of dogs (South Africa)	50–100	Practically 0*

* Among animals treated.

Other diseases of animals which have been successfully attacked by methods built upon Pasteur's work are rinderpest, pleuro-pneumonia of cattle, Texas cattle fever, swine erysipelas, glanders, etc.

There are, unfortunately, some ill-informed, and, we add without hesitation, ill-balanced people, who seek to oppose the wonderful progress here recorded because it has been gained through experimentation upon animals.

To the consideration of the more thoughtful among these we would commend the last quoted figures, which show that animals themselves have amply benefited from such experimentation. True, this argument will seem unnecessary to the unbiased reader who has perused the earlier paragraphs of our comments. But we are now speaking to the biased reader.

As for the hysterical and irresponsible antivivisectionist, we will attempt no missionary work on him (or her), but shall feel that our function is fulfilled when we have warned the other members of the community of the viciousness of the mental attitude and the methods resorted to by such misguided persons. Those who wish to inform themselves in detail on this point are referred to a pamphlet by Dr. W. W. Keen, "The Influence of Antivivisection on Character," published by the American Medical Association. From this, to illustrate our point, we will merely quote an anonymous letter received by Dr. Keen:

"Arch Fiend:

"I have read with horror your article in the Ladies' Home Journal on vivisection.

"I hope your mother, if she is living, will die in the most terrible torture, and if she is dead, that she will never know rest for having given life to such a vile monster as you—is the nightly prayer of a dozen women who indite this."

This, written to a man who is following in the footsteps of Pasteur, doing the noble work of the medical profession.—Scientific American.

THE CHANGE WROUGHT BY PREVENTIVE MEDICINE.

"An old lady motioned toward the door and said, in a whisper:

"'His mother, po' thing. Died of the fever, last night. Tha warn't no sich thing as saving of her. But it's better for her—better for her. Husband and the other two children died in the Spring, and she hain't ever hilt up her head sence. She jest went around broken-hearted like, and never took no intrust in anything but Clay—that's the boy thar. She jest worshiped Clay—and Clay he worshiped her. They didn't 'pear to live at all, only when they was together, looking at each other, loving one another. She's ben sick three weeks; and if you believe me that child has worked, and kep' the run of the med'cin, and the times of giving it and set up nights and nussed her, and tried to keep up her sperits, the same as a grown-up person. And last night when she kep' a-sinking and sinking, and turned away her head and didn't know him no mo', it was fitten to make a body's heart break to see him clomb on to the bed and lay his cheek agin hern and call her so pitiful and she not answer. But bymeby she roused up like, and looked around wild, and then she see him, and she made a great cry and snatched him to her breast and hilt him close and kissed him over and over agin; but it took the last po' strength she had, and so her eyelids begin to close down, and her arms sort o' drooped away, and then we see she was gone, po' creetur. And Clay, he—oh, the po' motherless thing—I cain't talk about it—I cain't bear to talk about it.'"

Thus movingly wrote Mark Twain and Charles Dudley Warner in The Gilded Age, a story of American life in the middle of the last century, before Pasteur founded and Koch developed the most humane of all the sciences, that of preventive medicine. How frequent were such scenes seven score years ago; how rare are they to-day! It is indeed beginning to be true that, by the sure and all-sufficient methods of disease prevention now developed, and by the zeal with which sensible people are applying these methods, many deadly fevers, many contagions, with the many heart-breaking episodes they occasion, are disappearing from human experience. Already are doctors finding that, through their own altruistic teachings, their incomes are being halved and quartered by the reduction in winter pneumonias, spring grippes, summer dysenteries and fall typhoid cases—with race suicide all the year around. A wit has well observed that the medical profession, by showing how much better—and cheaper—prevention is than cure, will soon have the human race like the oyster, which has no diseases: "it is either healthy or dead."—The Dietetic and Hygienic Gazette.

Honor Among Husbands.

It was their first separation, and he promised faithfully, when he started in the morning on a twenty-mile automobile trip to another town, that he would return in time for dinner at 7 o'clock.

But 7 o'clock found him still absent, and the clock kept steadily on until the hour of 10 was registered, and still no husband.

At last the now frantic bride sent telegrams to five of his friends living in towns that he might pass through, asking: "Is John spending the night with you?"

The husband reached home at midnight with a broken automobile trailing behind the wagon that had brought him home.

A few minutes later, one after another, the answers to the five telegrams arrived. Each one said: "Yes, John is spending the night with me."

The age of loyalty has not passed by.

COMMUNICATIONS.

AN OUTLINE OF COURSES OF INSTRUCTION IN BOTANY, PHARMACOGNOSY, MATERIA MEDICA, PHYSIOLOGY, TOXICOLOGY AND BACTERIOLOGY IN COLLEGES OF PHARMACY.

By ALBERT SCHNEIDER, M. D., Ph. D.

(Continued from Page 197.)

PART TWO.

(Work of Second Year).

GENERAL PHARMACOGNOSY, LABORATORY PHARMACOGNOSY, MATERIA MEDICA, TOXICOLOGY, POWDERED DRUGS.—LABORATORY WORK, GENERAL PHARMACEUTICAL BACTERIOLOGY, URINARY SEDIMENT.

XXXV.

148. NUX VOMICA.—Logoniaceae. Examine transverse sections of the cotyledon. Compare with Ignatia.

149. GENTIAN. — Gentianaceae. Examine transverse and radial longitudinal sections.

150. CHIRATA.—Gentianaceae.

152. APOCYNUM.—Apocynaceae. Compare the histology of **A. cannabinum** with that of **A. androsaemifolium.**

XXXVI.

152. STROPHANTUS. — Apocynaceae. Historical. Make a careful macroscopic and microscopic study of **S. Kombé** and **S. hispidus.**

153. JALAP.—Convolvulaceae. Commercial source. Examine transverse section.

154. SCAMMONY. Convolvulaceae.

155. ERIODICTYON—Hydrophyllaceae. Compare **E. Californicum** and **E. tomentosum.** Examine trichomes.

XXXVII.

156. SCUTELLARIA.—Labiatae.

157. MARRUBIUM. — Labiatae. Examine trichomes and compare with those of sage and Eriodictyon.

158. SALVIA.—Labiatae. Examine trichomes.

159. HEDEOMA.—Labiatae.

160. THYME.—Labiatae.

161. MENTHA. — Labiatae. Examine trichomes (glandular and non-glandular) and compare with those of other labiates. Compare peppermint and spearmint. Mint culture. Manufacture of oil.

XXXVIII.

162. LAVENDULA. — Labiatae. Examine trichomes of corolla tube and pollen grains. Manufacture of lavender oil.

163. ROSEMARY.—Labiatae.

164. CAPSICUM.—Solanaceae. Examination of surface and transverse sections of fruit and of seed. Species and culture varieties.

XXXIX.

165. BELLADONNA.—Solanaceae. Make careful microscopical examination of leaf and root and compare with Scopola leaf and rhizome. Commercial source of Belladonna. Belladonna culture in the United States. Adulterants.

166. SOPOLA.—Solanaceae. Study like Belladonna leaf. Commercial source and use.

XL.

167. HYOSCYAMUS.—Solanaceae. Study like Belladonna leaf. Source. Adulterants and impurities.

168. STRAMONIUM.—Solanaceae. Study like Belladonna leaf. Study seed microscopically. History of Jimson weed.

XLI.

169. NICOTIANA.—Solanaceae. History of tobacco. Tobacco culture. Tobacco habit. Tobacco as a drug. Study life histology and compare with stramonium.

170. LEPTANDRA. — Scrophulariaceae. Make careful microscopical examination of leaf. Digitalis culture. Wild growing digitalis in the United States.

XLII.

171. CAFFEA.—Rubiaceae. Historical. Cultivation of the coffee tree. Uses of coffee. Microscopical examination of the berry. Adulterants of coffee. Coffee substitutes.

172. IPECAC.—Rubiaceae. Make careful comparative microscopical examination of Rio and Carthagena ipecacs. Adulterants of ipecac.

XLIII.

173. CINCHONA.—Rubiaceae. Historical. Introduction of cinchona culture into India and Java. Examine radial longitudinal sections of several varieties of cinchona. Adulterants of cinchona. Cinchona alkaloids.

174. GAMBIR.—Rubiaceae. Commer-

cial varieties. Microscopical examination of crystals.

XLIV.

175. VIBURNUMS.—Caprifoliaceae. Compare the radial longitudinal sections of the bark of **V. opulus** and **V. prunifolium.**

176. VALERIANA.—Valerianaceae. Commercial source. Culture. Impurities. Microscopical examination.

177. PEPO.—Cucurbitaceae.

178. COLOCYNTH.—Cucurbitaceae. Microscopical examination of rind, seed and pulp. Adulteration.

XLV.

179. LOBELIA. Campanulaceae. Make microscopical examination of leaf and seed. Adulterants.

180. TARAXACUM.—Cichoriaceae. Historical. Range and occurrence of dandelion. Uses of dandelion. Examine transverse and longitudinal sections of root.

181. CICHORIUM.—Cichoriaceae. As for Taraxacum. Make comparative study of the roots of wild growing and cultivated chicories, also of roasted and unroasted roots. Chicory as a coffee adulterant and coffee surrogate.

XLVI.

182. LACTUCARIUM.—Cichoriaceae.

183. EUPATORIUM.—Compositae.

184. GRINDELIA.—Compositae. Source of commercial grindelias. Species. Uses.

185. ERIGERON.—Compositae.

186. CALENDULA.—Compositae.

187. ANTHEMIS.—Compositae. A comparison of the several commercial chamomiles. Examination of pollen grains.

188. YARROW.—Compositae.

XLVII.

189. MATRICARIA.—Compositae. Comparison of wild growing and cultivated varieties.

190. PYRETHRUM ROOT.—Compositae. Microscopical examination.

191. PYRETHRUM FLOWERS.—Compositae. Comparison of Pyrethrum species used in the manufacture of insect powders. Manufacture of insect powders. Importation of insect powders. Adulteration. Standards of quality.

XLVIII.

192. SANTONICA.—Compositae.

193. ARNICA.—Compositae.

194. LAPPA.—Compositae. Microscopical examination of root and seed.

XLIX.

195. COCCUS.—Hemiptera.

196. CANTHARIS.—Coleoptera. A comparative study (macroscopical and microscopical) of **Cantharis vesicatoria** and **Mylabris cichorii.** Adulterants.

197. HONEY.—Hymenoptera. Microscopical examination of honey (pollen grains) and of beeswax (raw and purified).

L.

198. GELATIN.—Ruminantia. Sources and uses. Microscopical examination to determine kind, as skin, tendon, ligament, hoof, horn and cartilage gelatin. Arsenical gelatins.

LI.

199. MILK.—Ruminantia. Dairying. Quality and purity of milk. Sugar of milk. Buttermilk.

200. BEEF EXTRACT.—Ruminantia. Source and manufacture. Microscopical examination.

MATERIA MEDICA.

A course of lectures and recitations, one hour each week, extending throughout the second year. The medicamenta used in the treatment of disease will be discussed from the standpoint of active constituents, physiological action, therapeutics, preparations and dosage. Vegetable, animal and mineral drugs of the United States are treated, giving also some attention to the drugs of other countries in so far as they find entry into the United States.

MATERIA MEDICA.

Scope. Definitions.
Introductory.
  Historical.
    Mythological Medicine. The Centaurs. Esculapius. Hygeia.
    Medical Papyri of Ancient Egyptians. Eber's Medical papyrus. Other Medical papyri.
    Kyphi Formulae.
    Greek Medical Temples.
    Greek Physicians.
    Relationship of Medical Practice and Religion.
    Medical Priests and Pharmaceutical Priests.
    Influence of Religion on the Practice of Medicine.
  The demoniacal origin of disease. Means to drive out the demons of disease.
  Ancient Practice of Medicine.
    Chanters—Litanies.
    Laying on of hands.
    Wearing of amulets.
    Belief in signatures.
    Health Laws of the Ancient Hebrews.
    Priests and physicians.
    Physicians and pharmacists.
    Ancient surgery.
    Early barbers as bleeders.

  - Medical Practices of American Indians.
    - Remedial agents. Herbs. Roots. Barks.
    - Medicine men and their methods.
    - Sweat houses.
  - Medication among animals.
    - Emetics and tonics.
    - Laxatives and diuretics.
    - Dust bath of feathered animals.
    - Mud bath of pachyderms.
    - Hot baths. Sulphur baths. Etc.
  - Quacks and quackeries.
  - Home and self medication.
  - Drug habits. Medicine habits.
  - Anti-medical propaganda.
  - Anti-vivisectionists.
  - History of Pharmacy.
    - Earliest Drug Stores.
    - Manner of conducting the pharmacy.
    - Druggists. Apothecaries.
    - Relationship between physician and pharmacists.
  - Drug Adulteration and substitution in olden times.
  - Unusual drugs employed in olden times.
- Medical schools and cults.
  - Allopathic or regular school.
  - Homeopathy.
    - Antiquity—Ancients. Theory of signatures.
    - Hahnemann and Yahn. Colleges of Homeopathy.
    - "Similia similibus curantur."
    - "Proving" the drugs.
    - Triturations and attenuations.
    - Potency—How developed.
    - Simples vs. compounds.
    - Secondary and primary action of drugs.
    - Influence of homeopathy on allopathy.
    - Modern homeopathy.
      - Medical.
      - Surgical.
  - The Eclectic School of Medicine.
  - Newer Medical Cults.
    - Osteopathy. Chiropractics. Etc.
    - "Christian Science." "Faith Healers."
    - Healers and Pathists.
  - Magnetic Healers. Mesmerism. Hypnotism, etc.
- Source of Drugs and Medicines.
  - Vegetable Kingdom.
  - Animal Kingdom.
  - Mineral Kingdom.
- Kinds of Medicines.
  - Medical—Of different Schools.
  - U. S. P. and N. P.
  - Patent and Proprietary.
  - Quack Remedies.
  - Home Remedies.
- Action of Drugs.
  - Physiological Action.
    - Primary Action.
    - Secondary Action.
    - Local and Remote.
  - Therapeutic Action.
  - Active Constituents.
    - Alkaloids.
    - Glucosides.
    - Active principles.
    - Oleo-resins, resins, gums, etc.
  - Causes modifying the action of drugs.
    - Age. Infancy. Middle Age. Old Age.
    - Body weight. Weight of Active Tissue.
    - Sex.
    - Idiosyncrasy. Temperament.
    - Physical state. Mental state. Placebos.
    - Pathological condition.
      - Digestive tract.
      - Nervous system.
    - Habits. Drug habit. Alcohol.
    - Tobacco, coffee, tea, etc.
- Administration of remedies.
  - External or dermatic.
    - Epidermatic.
    - Endermatic.
    - Enepidermatic.
  - Hypodermic.
  - Intravenous.
  - Intramuscular.
  - Transfusion. Venous and arterial.
  - Internal. Per mouth. Rectal.
    - Stomach.
    - Intestinal Tract. Enteric remedies.
    - Broncho-pulmonary tract. Inhalation.
  - Into serous cavities.
- Posology.
  - Variation in dosage according to the effects it is desired to produce.
  - Variation in doses according to different authorities.
  - Dosage according to age
    - Children— $\left\{ \frac{x}{x+12} = d \right\}$ (x=age)
    - Youth—1/2 to 2/3 full dose.
    - Adults—Full dose.
    - Old Age—Doses reduced.

Average Doses.—Students of medicine, pharmacy and dentistry have great difficulty in familiarizing themselves with the doses of drugs. To actually memorize the dose of every pharmaceutical preparation is absolutely impossible and any such attempt will certainly prove disappointing. The following tables will serve as valuable aids to students of materia medica. It must of course be kept in mind that there are numerous exceptions to any rule, but it is believed that if the student will fix in mind the general tables here given he will be enabled to easily acquire the ability to remember the more specific dose of each and every one of the vast number of pharmaceutical preparations used as curative agents. The following are the groups of drugs with the average doses for adults:

Group I.—Powerful Vegetable Drugs.

Crude drug or the powder, 1 to 3 grains.

Active constituent or alkaloidal salt, 1-150 to 1-100 grain.

Extract (soft or powdered), 1-8 to 1-6 grain.

Tincture and fluid extract (U. S. P.), 5 minims.

The following are the most important drugs belonging to this group:

Aconite
Belladonna
Capsicum
Cocculus
Colchicum
Colcynth
Conium
Convallaria
Delphinium
Digitalis
Duboisia
Hyoscyamus
Ignatia
Lobelia
Nux Vomica
Physostigma
Sabadilla
Scopola
Staphisagria
Stramonium
Strophantus
Tobacco
Veratrum album
Veratrum viride

Poisonous weeds, generally, whether used medicinally or not, may be included in this group.

Group II.—Vegetable Drugs not very powerful or poisonous—The Common Vegetable Drugs.

Crude drug or the powder, 15 to 30 grains.

Active constituent or alkaloidal salt, ⅛ to 1 grain.

Solid extract, 2 to 4 grains.

Tincture and fluid extract, ½ to 1 drachm.

Infusions, teacupful.

For the above considerable latitude should be allowed. Such drugs as hydrastis, leptandra, rhubarb, gentian, grindelia, tansy, matricaria, etc., belong to this group.

Group III.—Compound Vegetable Powders, Spices, Non-toxic Salts, etc.

To this group belong astringent vegetable powders; compound vegetable powders; bitter vegetable tonics; aromatic vegetable powders; spices (excepting capsicum); chloral hydrate; sodium, potassium, magnesium, ammoniacum, bismuth and iron salts; salts of vegetable acids; resins; gums; digestive ferments; coal tar derivatives as antikamnia, etc.

Average dose is about 5 grains.

Group IV.—Minerals and Toxic Mineral Salts.

Phosphorus, arsenic, arsenical salts, arsenites, cyanides, corrosive sublimate, chloride of gold.

Average dose is 1-100 to 1-50 grain.

Group V.—Astringent Mineral Salts, etc.

Zinc salts, lead salts, copper salts, alkaloidal salts of opium.

Average dose is 1-6 grain. Large doses of metallic salts usually cause emesis.

Group VI.—Acids and Volatile Oils.

Table of Chemical Incompatibilities.

Solutions of	Alkaloidal solutions	Metallic solutions	Solutions of lead and silver salts	Solutions of calcium salts	Solutions of magnesium salts	Solutions of albumen and gelatin
Alkalies	P	P	P	P	P	
Tannic Acid	P	P	P			P
Carbonic acid and carbonates	P	P	P	P	P	
Sulphuric acid and sulphates			P	P		
Phosphoric acid and phosphates	P	P	P	P	P	
Boric acid and borates	P	P	P			
Hydrochloric acid and chlorides			P			
Hydrobromic acid and bromides			P			
Hydroiodic acid and iodides						
Sulphides		P	P			
Arsenical Preparations		P	P			
Albumen		P	P			

Powerful vegetable and mineral acids, volatile oils, croton oil, carbolic acid, cresol, creosote, creolin (hydrocyanic acid excepted).

Average dose is two drops well diluted in some menstruum.

Cumulative Action of Drugs. Causes.

- Absorption more rapid than excretion.
  - Mercury, lead, etc.
- Retardation or arrest of excretion.—
  - Digitalis, strychnine, etc.
  - Change in the rate of absorption.
- Adaptation to gradually increasing doses.
  - Gradual reduction in rate of absorption.
- Incompatibility—Synergists, Antagonists.
  - Physiological—Prime importance to physician.
  - Chemical—Prime importance to pharmacist.

Substances chemically very incompatible—

1. Chorine in solution.
2. Solutions of iron salts.
3. Lead salts.
4. Zinc salts.
5. Silver salts.
6. Corrosive chloride.
7. Iodine and iodides.
8. Potassium permanganate.
9. Potassium acetate.
10. Potassium bromide.
11. Tannic acid.
12. Dilute hydrocyanic acid.
13. Mineral acids.
14. Liquor potassiae.
15. Quinine.
16. Tinct. of guaiac.

Do not mix substances rich in O with substances that oxidize readily. Examples:

- Chlorates
- Iodates
- Permanganates
- Picrates
- Nitrates
- Bichromates

should not be mixed with

- Charcoal
- Sulphur
- Iodine
- Carbolic Acid
- Glycerin
- Turpentine
  - and organic compounds generally.

THE PRESCRIPTION.

- Historical.
- Parts of the Complex Prescription.
  - Date and name of patient.
  - Inscription. (Symbol for Jupiter.) ℞.
  - Basis or main drug.
  - Adjuvans=Assistant.
  - Corrigens—Corrector or prompter.
  - Constituens—Vehicles, excipient.
  - Subscription—Direction to pharmacist.
  - Direction—For patient.
  - Signature of physician.
- Abbreviations.
- Prescription Latin. Case Endings.
- Reading and interpreting the prescription. Legibility.
  - As to the therapeutic properties of ingredients.
  - As to compatibility—chemical.
  - As to dosage.
  - As to most suitable manner of filling.
  - As to time required for filling.
- Prescription Ownership.
- Refilling of prescriptions.

COUNTER PRESCRIBING.

DISPENSING PHYSICIANS.

REMEDIAL AGENTS.

- Imponderable Remedies.
  - Light. Sunlight. X-rays. Radium. Electric Light. Heat.
    - Sun heat. Vesication. Cauterization.
    - Russian bath (hot vapor).
    - Turkish bath (dry hot air).
    - Galvano-cautery. Thermo-cautery. (Thermostat.)
  - Cold.
    - Wet pack. Cold pack.
    - Cold Douche.
    - Ice bags. Cold water coils.
  - Electricity. Electro-therapy.
  - Magnetism. Mesmerism.
  - Hypnotism. Mental Influence,
  - Air. Ozone. Nascent Oxygen.
- Mechanical Curative Agents.
  - Massage. Masseur. Masseuse.
    - Local and general.
    - In chronic joint affections.
    - In Mitchell's Rest Cure.
    - Combined with Faradism.
    - In chronic constipation.
    - Paralyses.
    - Neurasthenia. Nervous prostration. Hysteria. Fainting. Contra-indicated in acute inflammatory conditions.
  - Exercise.
    - Walking. Running. Riding. Rowing.
    - Gymnastics.
    - Athletics. Over-exertion.
    - Breathing exercises.
    - Vibrators, mechanical.

Hydrotherapy.
Hygienic Remedies. Preventive Medicine.
  Fresh Air. Ventilation. Drafts.
  Sunlight.
  Good food. Dietetics.
  Suitable exercise. Physical and mental.
  Moderation. In eating. In drinking.
    Use and abuse of stimulants. Narcotics.
  Education.
  Suitable clothing.

Pharmaceutical preparations.
  Solutions. Suspensions. Colloids.
  Liquid mixtures.
  Solid mixtures.
  Extractive preparations.
  External use.
  Internal use.

Nerve excitants and depressants.
  Alcohols.
  Anesthetics.
  Hypnotics.
  Motor depressants.
  Motor excitants.

Drugs acting on circulatory organs.
    Vaso-constrictors.
Antiseptics.
  External.
  Internal—Enteric.
  Respiratory tract.
Antipyretics.
Alteratives.
  Animal.
  Vegetable.
Volatile oils, resins, etc.
Vegetable astringents.
Acids. Alkalies. Salts.
Drugs acting on the digestive tract.
  Bitter Tonics.
  Digestants.
  Fats and oils.
  Emetics.
  Cathartics.
  Anthelmintics.
Emmenagogues and ecbolics.
Expectorants.
Diuretics.
Diaphoretics.
Irritants.
  Rubifacients.
  Caustics or escharotics.
Emollients. Demulcents. Protective Agents.
Animal extracts.

TOXICOLOGY.

A course of ten lectures and class demonstrations intended to familiarize the student with the general principles of toxicology and make clear the best course of action in all cases of poisoning with which the pharmacist may have to deal. Poisoning, whether accidental, suicidal or criminal, calls for prompt action. Delay may mean death. The future pharmacist must know **how** to act promptly. The course is supplemental to the courses in pharmacognosy and materia medica.

Introduction.
  Definition of toxicology.
  Definitions of poisons.
    Medical—Any substance or substances which when introduced into the body (by any possible method) cause injurious effects, illness or death, due to other than purely mechanical causes.
    Legal—Any substance or destructive thing administered to or caused to be taken by a person with intent to do bodily harm or to commit murder.
  Scope of pharmaceutical toxicology.
General Toxicology.
  Sources of Poisoning.
    Medicines and chemicals.
    Food and drink. Contaminated food and drink.
    Poisonous Plants. Bacteria, yeasts, molds, and higher plants.
    Poisonous Animals. Snakes, lizards, spiders, scorpions.
    Lack of Hygiene. Unsanitary surroundings.
    Factories and laboratories.
    Paints and technical fabrics.
    Poisonous vapors and gases.
  Manner of Poisoning.
    Accidental.
    Suicidal.
    With intent to kill.
    With intent to disfigure.
  Symptoms of poisoning.
    Disturbances of the digestive tract.
    Anatomical changes.
    Disturbances of the respiratory tract.
    Cerebro-spinal disturbances.
    Vaso-motor disturbances.
    Action on heart.
    Disturbances of the sensory organs.
    Motor disturbances.
    Speech and breath.
    Skin and temperature.
    Secretory organs.
  Course and Termination of Poisoning.
    Death.
    Partial recovery.
    Complete recovery.
  General treatment.
    1. Physical treatment of poisoning.
      Exercise. Artificial respiration, cold douche, flagellation, stomach tube, stomach pump, suction, etc.

  2. Administration of antidotes.
    a. Chemical antidotes.
    b. Physiological antidotes.
  3. Symptomatic treatment.
  4. Prophylaxis.
Medico-legal aspect of poisoning.
  1. Evidences of poisoning.
    a. Symptomatic evidence.
    b. Post-mortem evidence.
    c. Chemical evidence.
    d. Experimental evidence.
    e. Circumstantial evidence.
  2. Medico-legal procedure.
  3. Expert testimony.
    a. Qualifications of experts.
    b. Testimony of experts.
    c. Direct and cross-examination.

Special Toxicology.
Classification of poisons.
  1. Physical classification of poisons.
    a. Solids (Solutions).
    b. Liquids and Vapors.
    c. Gases.
  2. Chemical classification of poisons.
    a. Elements. Iodine, bromine, mercury.
    b. Acids. Mineral acids, vegetable acids.
    c. Alkalies. Lye, caustic potash, caustic soda.
    d. Alkaloids of medicinal plants and non-medicinal poisonous plants.
    e. Alcohols. Methyl alcohol.
    f. Neutral Salts.
    g. Toxins. Toxalbumens. Auto-intoxications. Autolysis.
    h. Ptomaines. Tainted meats, fish, canned meats.
    i. Glucosides. Of medicinal plants and non-medicinal poisonous plants.
    j. Bitter Principles. Active principles other than alkaloids and glucosides.
  3. Classification according to the rate of the development of the symptoms.

Poisons Classified According to Physiological Action.
  I. Irritants.
  Mineral acids, alkalies, phosphorus, bromine, iodine, arsenic, antimony, mercury, lead, copper, tin, bismuth, carbolic acid, trichina, ptomaines.
  II. Neurotics.
    1. Cerebral—Opium, alcohol, anaesthetics, Chloral, CO, CO_2.
    2. Spinal—Strychnine.
    3. Cerebro-spinal.
      a. Deliriants. Stramonium, hyoscyamus, belladonna.
      b. Depressants—Aconite, tobacco, lobelia.
      c. Asthenics—Digitalis, hydrocyanic acid, fishberry.

Antidote and poison laws.
  California state board series.
  California poison law.
    General outline of the law.
    Administration of the law.
  The duty of the pharmacist in emergency poisoning cases.
    Preliminary examination of patient.
    Reports of witnesses.
    Preparing antidotes.
    Calling a physician.
    Administering the antidotes.
    Noting results.
    Reporting to the physician.

POWDERED VEGETABLE DRUGS.

A laboratory course of six weeks (two periods of two hours each per week) during the second term of the senior year. For the most part the samples from the college supply are used, with occasional samples secured from retail and wholesale dealers. The powdered drugs are examined organoleptically (feel, color, odor, taste) and microscopically. The following list of one hundred powdered vegetable drugs is selected as being fairly representative. As a rule the time allotted for the work does not permit the examination of the entire number. Not less than fifty, however, should be examined.

The following are the powdered drugs to be examined indicating or naming those tissues, cell-forms and cell-contents which require special study. The student is required to make drawings of the characteristic elements of each drug examined.

The text-book used is Schneider's Powdered Vegetable Drugs. Kraemer's Botany and Pharmacognosy will be found useful as a reference work, also the works by Berg, Vogel, Moeller, Planchon et Collin, and others.

ACONITE—Compound starch granules, parenchyma cells and thin-walled rectangular sclerenchyma cells. Compare the several aconites.

AMYGDALA—No starch, thin-walled oil bearing endosperm cells. In the powder from the unblanched seeds note the reddish brown sclerenchymatous cells of the testa, or seed-coat. Compare sweet and bitter almonds. Examine commercial almond meals.

ANISE—Short single-celled trichomes. Pericarp parenchyma and oil bearing endosperm. Compare with other umbelliferous fruits.

ARECA NUTS—Greatly thickened, porous walls of endosperm cells. Radially elongated brown colored epidermal cells.

ASAFETIDA—Note foreign additions and inclusions which are generally present in large amount, as mineral and vegetable matter.

ASPIDIUM—Typical parenchyma with simple irregularly elliptical starch granules, yellowish resin, scalariform ducts. Compare stipes with rhizomes.

BELLADONNA LEAVES—Few usually broken 2 to 5-celled simple thin-walled trichomes, and some leaf parenchyma cells filled with micro-crystalline calcium oxalate.

BELLADONNA ROOTS—Parenchyma filled with compound starch granules with excentric hili. Some cells filled with micro-crystalline calcium oxalate. Porous ducts.

CAFFEA—Thick-walled, porous endosperm tissue, and sclerenchymatous fibers, no starch.

CALUMBA—Thin-walled parenchyma with simple ellipsoidal starch granules having prominent fissured hili. Large porous reticulate ducts and a few thin-walled sclerenchyma cells.

CANELLA BARK—No bast, abundant typical sclerenchyma cells, resin, abundant aggregate crystals, some starch.

CANNABIS—Abundant simple, rigid, conical, curved trichomes. Abundant small aggregate crystals. Some multi-cellular glandular trichomes, stem tissue, and resin. Examine seed.

CAPSICUM—No starch, reddish oil globules, parenchyma with oil globules, large cells with convolute walls, sclerenchymatous cells. Compare commercial grades and varieties.

CARDAMOM—Endosperm tissue much like that of pepper, filled with small starch granules. Pericarp composed of fibrous tissue. Compare the several varieties.

CARTHAMUS—Pollen grains typical of Compositae. Note color. No characteristic tissue. Compare with saffron.

CARYOPHYLLUS—Few bast cells, no sclerenchyma cells, few triangular pollen grains, abundant small-celled parenchyma, oil and aggregate crystals. Clove stems contain abundant sclerenchyma cells and sclerenchymatous bast. Under the Pure Food and Drugs Act 5% of clove stems are admissible.

CICHORIUM—No starch, no characteristic tissue, parenchyma with inulin, ducts, tracheids. Much used as an adulterant of coffee.

CINCHONA—Parenchyma cells. Large, thick-walled bast cells and some sclerenchyma; some starch and micro-crystalline calcium oxalate. Compare red and yellow cinchonas. Grahe's test.

CINNAMONUM — Sclerenchymatous bast, sclerenchyma and starch bearing parenchyma, small prismatic crystals. Compare Cassia, Ceylon and Saigon cinnamons.

COCA—No trichomes, lower epidermal cells papillose, stomata with two nonpapillose neighboring cells, abundant prismatic crystals. Compare the several varieties.

COLCHICUM CORM—Parenchyma cells with large compound starch granules having prominent fissured hili. Some spiral ducts and thick-walled porous tissue.

COLCHICUM SEED—Thick-walled porous endosperm cells with proteid granules and oil globules.

COLOCYNTH—Pulp composed of very large thin-walled empty parenchyma cells. Rind and seed contain abundant sclerenchyma cells.

CONIUM SEED—No trichomes (see anise). Small-celled endosperm tissue with proteid granules and oil globules. Pericarp parenchyma. Sodic hydroxide test (mouse odor).

CONVALLARIA—Parenchyma with distinct nuclei, raphides, tracheids and spiral ducts. Compare with couch grass.

CORIANDER—Compare with anise and conium. No trichomes. Fibrous pericarp.

COTO BARK—Large sclerenchyma cells, parenchyma with some starch and proteid globules. True coto bark (and paracoto) is very rare. Organoleptic tests important.

CROCUS—Few large spherical pollen grains, thin single-celled trichomes, elongated parenchyma cells. Coloring matter.

CUBEBS—Abundant Sclerenchyma, oil globules, parenchyma, endosperm with starch resembling that of pepper, some tracheids (from stems). Compare with allspice and black pepper.

CURCUMA—Parenchyma cells filled with pasty starch, few unchanged starch granules, few single-celled, mostly broken trichomes. Compare with ginger.

CYPRIPEDIUM — Raphides, porous parenchyma with small simple starch granules, scalariform and porous tracheids.

DEXTRIN—Study as to identity of starch. Iodine test negative.

DIGITALIS—Abundant simple 2- to 5-celled trichomes, some glandular trichomes. Compare with Belladonna, Hyoscyamus and Stramonium leaves.

ERGOT—Trace of rye starch present. No characteristic tissue. Pseudo-parenchyma of fungus. Compare with corn smut.

ERIODICTYON—Abundant simple, single-celled, curved and twisted trichomes, some sessile glandular trichomes, resinous.

EUCALYPTUS—Polygonal epidermal cells with much thickened cuticle, no trichomes, stomata indistinct because of thickened cuticle. Compare dorsiventral and isolateral leaves.

EUONYMOUS—The root bark is rich in small starch granules and aggregate crystals. No bast or sclerenchyma. Ducts and tracheids. Stem bark is without starch, bast present, and numerous aggregate crystals.

EUPATORIUM—Leaf tissue. Pappus, simple 3- to 6-celled glandular trichomes, and pollen grains typical of Compositae.

FENNEL—No trichomes. Compare with anise, caraway and conium.

FENUGREEK—Epidermal palisade. Endosperm cells with oil globules and proteid granules.

FRANGULA—Bast and numerous crystal bearing fibers. Bark parenchyma cells with aggregate crystals. No sclerenchyma. Compare with Rhamnus bark.

GALLA—Aleppo galls with sclerenchyma, some compound starch, aggregate crystals and resin. Chinese galls with single-celled trichomes but no sclerenchyma.

GENTIAN—Large empty parenchyma and large reticulate ducts.

GERANIUM—Simple starch and abundant large aggregate crystals. Ducts.

GLYCYRRHIZA—Bast and numerous crystal bearing fibers. Parenchyma with small starch granules. No sclerenchyma.

GUAIACUM—Thick-walled wood fibers. Medullary rays of a single layer of cells. Resin ducts with brown resin. (Resin changes to olive green with age.) Compare with other woods.

GUARANA—Masses of pasty starch, some sclerenchyma cells. No fibrous tissue.

HAMAMELIS—Stellate trichomes, few branching sclerenchyma cells. Abundant prismatic crystals, and crystal bearing fibers. Epidermal tissues.

HYDRASTIS—Porous ducts and tracheids. Parenchyma with compound starch granules. No sclerenchyma cells which distinguishes it from **coptis anemonaefolia.**

HYOSCYAMUS—Large, simple, thin-walled 2- to 5-celled trichomes. Abundant prismatic crystals. Some glandular trichomes. Compare with belladonna, stramonium and digitalis.

IGNATIA—Thick-walled endosperm cells, resembling those of **Nux vomica.** Trichomes almost wholly wanting.

ILLICIUM—Abundant large-celled sclerenchyma cells.

IPECAC—Parenchyma filled with compound starch, raphides, and tracheids. Compare the Rio and Carthagena varieties.

IRIS FLORENTINA—Abundant simple elliptical more or less truncate starch granules and very large elongated prismatic crystals. Few ducts.

JALAPA—Parenchyma filled with starch; large porous ducts, resin and resin globules. Some pasty starch. Some aggregate crystals.

KAMALA—Glands (red colored) and stellate trichomes.

KRAMERIA—Parenchyma with red coloring matter, some compound starch, bast and porous ducts.

LOBELIA—Abundant large single-celled trichomes. Stem tissue, leaf tissue. Seed tissue characteristic of Solanaceae (compare with seed tissue of capsicum, belladonna and tobacco).

LUPULIN—Typical glands.

LYCOPODIUM—Typical spores.

MACE—Parenchyma with amylo-dextrin granules, resin bearing cells and epidermal cells. Compare true (Banda) mace and wild mace (Bombay). There are several kinds of wild mace.

MARJORAM—Numerous, rather short, simple externally roughened trichomes. Vertical walls of epidermal cells very wavy. Stem tissue.

MATICO—Simple, rigid, 2- to 5-celled trichomes. Resin glands. Vascular tissue.

MENISPERMUM—Some bast, some starch resembling that of corn, large-celled parenchyma, tracheids and porous ducts.

MENTHA—Simple, 2- to 5-celled trichomes; glandular trichomes, stem tissue. Compare spearmint and peppermint.

MYRISTICA—Endosperm cells filled with resin, compound starch granules and fat.

NUX VOMICA—Abundant characteristic trichomes and very thick-walled endosperm cells with proteid matter. Compare with Ignatia.

PARACOTO—Similar to coto in structure. A rare drug. Compare with coto.

PHYTOLACCA—Histology similar to belladonna excepting the raphides which at once distinguish this root from belladonna. Compare with belladonna and scopola.

PILOCARPUS—A few single-celled trichomes in **P. jaborandi**; practically none in **P. microphyllus.** A few sclerenchymatous cells and aggregate crystals. Compare the several varieties.

PIMENTA—Abundant sclerenchyma cells, some short, somewhat twisted, single-celled colorless trichomes. Compare with cubeb and black pepper.

PIPER—Rather small sclerenchyma cells, compact endosperm tissue filled with very small globular starch granules. Sclerenchyma cells largely wanting in white pepper. Compare with white pepper, cubeb, and pimenta.

PODOPHYLLUM — Parenchyma cells filled with simple and compound starch granules, aggregate crystals. Reticulate, porous and a few spiral ducts.

PRUNUS SEROTINA—Prismatic and aggregate crystals, typical and branching bast, and sclerenchyma. Compare with bark of choke cherry (**P. virginiana**).

PYRETHRUM—(See full description on page 248).

PYRETHRUM ROOTS — Parenchyma with inulin and yellow resin, sclerenchyma cells. No bast or starch.

QUASSIA—Wood fiber and porous ducts, crystal bearing fibers. Compare Jamaica and Surinam quassias.

QUERCUS — Abundant sclerenchyma, bast and crystal bearing fibers.

QUILLAJA—Abundant bast and large prismatic crystals.

RHAMNUS—Sclerenchyma, bast and abundant crystal bearing fibers. Compare with Frangula and the several other species of Rhamnus.

RHEUM—Numerous very large aggregate crystals, some compound starch, yellow globules and some vascular tissue. Compare with dock.

RHUS GLABRA — Simple trichomes (red and colorless) and compound trichomes. Palisade tissue and endosperm tissue.

SALIX—Abundant typical bast and crystal bearing fibers, also aggregate crystals. No sclerenchyma cells.

SARSAPARILLA—Abundant compound starch and raphides in rectangular somewhat elongated parenchyma cells. Tracheids and some sclerenchymatous cells from the endodermis. Compare the several commercial varieties.

SASSAFRAS—Sclerenchyma and sclerenchymatous bast. Some compound starch. Mucilage bearing cells. Compare with cinnamons.

SCOPOLA RHIZOMES—Compare with belladonna roots to which it is closely similar. Compare scopola leaves with belladonna leaves.

SENNA—Single-celled, rather short and bent trichomes. Compare Nebenzellen (neighboring cells) of India and African sennas.

SERPENTARIA — Compound starch, tracheids, porous and reticulate ducts. No bast or sclerenchyma.

SINAPIS—No starch, ducts, bast or sclerenchyma. Parenchyma filled with granules. Epidermal cells. Compare mustards and rape seed.

SPIGELIA—No bast or sclerenchyma. Parenchyma and ducts.

STRAMONIUM—Large, thin-walled 2- to 5-celled trichomes, glandular trichomes, prismatic crystals. Compare with belladonna, hyoscyamus and digitalis.

STROPHANTUS—Simple, single-celled trichomes, endosperm cells with oil and proteid granules.

TABACUM—Large, simple, 2- to 6-celled trichomes and glandular trichomes. Compare with stramonium.

TARAXACUM—No starch, bast or sclerenchyma. Parenchyma with inulin, reticulate ducts.

THEA—Simple, single-celled somewhat twisted trichomes, a few branching sclerenchyma cells. Epidermal tissue. Reed and West tests for coloring matter.

THEOBROMA—Parenchyma with starch and fat. Compare cocoa and chocolate. Examine cocoa shells.

VALERIAN—Parenchyma with compound starch. Some ducts and tracheids. No bast or sclerenchyma.

VERATRUM—Parenchyma with rather large compound starch granules, ducts and a few sclerenchyma cells.

XANTHOXYLUM—Bast, sclerenchyma, resin bearing cells and prismatic as well as aggregate crystals.

ZINGIBER—Simple, large, irregularly elliptical starch granules with excentric hili. Some ducts.

Each powdered drug is to be examined as indicated in the following descriptions of ten samples of powdered drugs. The ash determinations are, however, omitted in the regular two years' course.

1. ACONITE ROOT—U. S. P. The roots of **Aconitum napellus L. Ranunculaceae.**

No. 60. Dry, slightly starchy or mealy feel.

Light brown.

Odor faint, recalling horseradish when moist.

Taste sweetish, very markedly and persistently acridly pungent; acridity especially marked in the fauces. Benumbing effect.

Predominating elements are derived from the more or less broken, large, rather thick-walled, essentially isodiametric closely united parenchyma cells filled with compound starch granules. A few slightly brownish, essentially rectangular only slightly elongated, rather thin-walled, very porous sclerenchyma cells, which generally occur singly, rarely in twos. Some porous ducts and tracheids; spiral ducts rare.

Starch granules singly, in twos, fours and in aggregates of from five to seven; hili distinct in the larger granules, centric; single granules 5 microns to 15 microns; cross bands quite distinct, broad, right angled. There should be no thick-walled sclerenchyma, no true bast, and vascular tissue should be sparingly present.

Ash about 5%. Impurities should not exceed 5%. Deep yellow with potassium hydrate solution. Deep red with concentrated sulphuric acid.

(To be continued.)

EXTERMINATING GARDEN AND HOUSE PESTS.

By F. PILKINGTON.

Ants.

Ants are particularly objectionable to the fruit grower. They pierce the epidermis of the ripe fruit and feed on the sugar contained in the pulp. They also eat their way through the perianth leaves of many flowers in order to get to the honey in the nectaries. Their gravest fault, however, is that they carry about and nourish many pests which are harmful to plants, notably the various kinds of aphides.

The ants' nest is governed by a queen, and is most rigorously controlled. The workers are barren females, and they carefully tend the eggs, which hatch out in from two to four weeks, forming small white legless grubs or larvae. These are divided into groups according to age, and become pupae in from one to six months. The pupae are sometimes covered with a cocoon, sometimes they are naked. They are often called "ant eggs." After some days they emerge as perfect insects, and the older ants may be seen carefully unfolding their legs and otherwise assisting them. The males and females possess wings. The former do not live long, and the latter lose their wings when they settle down to form a fresh nest. The workers are wingless. The nest of the ant, therefore, contains males, females and workers, the last constituting the great majority. Each nest may contain from five thousand to five hundred thousand individuals. There are also troops of aphides and numerous domestic pests in the form of certain blind beetles, etc. The development of individuals is always proportional to the accommodation of the nest. From this the difficulty of ridding a greenhouse of ants otherwise than by the destruction of the nest with the queens is obvious. If fifty individuals are poisoned or otherwise die fifty more larvae than would have otherwise survived are allowed to come to maturity, and the capacity of the nest is again balanced.

If at all possible of application the best remedy is boiling water, which should be poured into the nest. Failing this, carbon bisulphide, nitrobenzene, or paraffin injected into the nest will destroy the insects. A lump of sodium cyanide is also an effectual remedy. The various preparations of which naphthalene is the basis will simply drive the ants from one nest to another. 1.25 per cent. is often used, and if it does not result in the death of the insects it certainly repels them. One of the most crude and dangerous remedies is a proprietary ant destroyer composed of arsenic and honey. Such a liquid ant destroyer could be made as follows:

Arsenical Ant Destroyer (Liquid).

Arsenious oxide	5.00
Sugar	40.00
Liquid glucose	20.00
Water	to 100.00

Mix the arsenious oxide in very fine powder with the other ingredients.

If the nests cannot be located, one of the two following pastes could be employed. They should be smeared on sticks and placed about the staging of the greenhouse:

Nicotine Ant Destroyer (Paste).

Nicotine	10.00
Suet	5.00
Lard	85.00

To these add a trace of oil of anise and color with chlorophyll.

Arsenical Ant Destroyer (Paste).

Arsenious oxide	5.00
Sugar	25.00
Liquid glucose	20.00
Flour	50.00

Flavor with a little oil of anise and color with paris green. This should not remain in contact with air or moisture, otherwise it becomes uncomfortably sticky. The merest trace of oil of anise must be used. A little appears to attract the insects, but more than a trace repels them. If for any reason the use of liquid or paste be impossible the following powder is very destructive, and is much more effective than ready-made naphthalene without lime:

Ant Powder.

Camphor	10.00
Naphthalene	40.00
Lime	50.00

This may be sprinkled about the haunts of the insects or, better still, be introduced into the nests.

Beetles.

The Coleoptera, like the other members of the class Insecta, are more destructive when in the larval condition than in any other state. It is, therefore, when they are feeding heavily as larvae that they should be destroyed. Despite all precautions many come to maturity and cause infinite trouble to the gardener. Cockroaches are particularly destructive to orchids, devouring the pseudo-bulbs; they also attack the succulent portions of many other plants. Many formulae of beetle powders have been published, and there are many proprietary preparations. These nearly all contain borax as the essential ingredient. One of the most simple of these, particularly attractive to cockroaches, is the following:

Cockroach Powder.

Borax	60.00
Sugar	20.00
Flour	15.00
Cocoa	5.00

A little of this powder should be placed on paper and laid in the haunts of the insects every night.

Another formula, which is generally more applicable than the above, is as follows:

Beetle Powder.

Barium carbonate	15.00
Borax	30.00
Sugar	25.00
Ground rice	20.00
Calcium sulphate	10.00

This should be suitably colored and used in the same way as above. Sometimes it is much more convenient that the vermicide be in the form of a paste. A suitable paste for cockroaches and other beetles may be made as follows:

Beetle Paste.

Phosphorous	1.00
Lard	20.00
Flour	60.00
Sugar	10.00
Water	q. s.

Melt the phosphorous with about ten parts of water, pour this on to the lard, rub briskly, add the flour and sugar and work into a paste.

On the Continent the use of highly toxic substances for the destruction of beetles and pests in general appears to be more popular than with us. One of the best known German beetle powders is made as follows:

Mercuric chloride	0.05
Rye flour	20.00
Borax in powder	40.00
Oil of eucalyptus	0.10
Angelica root in powder to	100.00

The mercuric chloride is sometimes replaced by double its weight of arsenious oxide in the above formula.

A popular French beetle powder consists for the most part of basic ferric arsenate. It is stated that this preparation is quite harmless to human beings and domestic animals. It can be prepared by precipitating a suitable quantity of solution of ferric sulphate with a mixture of sodium arsenate and sodium bicarbonate. The precipitate is washed free from all soluble matter and dried. For use, one part of the powder is well mixed with about one part of sugar and about four parts of boiled potato. This is made into a soft paste with water, and "laid in all such places as the cockroaches or blackbeetles generally resort to."

Snails and Slugs.

Snails and slugs are amongst the most ravenous of the gardener's enemies. They are found in the kitchen garden, flower garden, field and greenhouse, and though they appear to thrive best in a warm, moist atmosphere, they are capable of withstanding violent changes of temperature. Slugs lay enormous numbers of eggs, which they deposit under old leaves, twigs and other rubbish during the greater part of the summer and autumn. They are, perhaps, the greatest enemies of the orchid inside, and of the dahlia outside. They feed at night, particularly after rain. They are often introduced into the orchid house in the sphagnum moss. This should, therefore, always be carefully examined before its introduction. The plants should be placed over the water, and a little cotton wool should be wrapped round the base of each inflorescence. For dahlias and general outside use one of the best deterrents is a mixture of soot and lime or naphthalene and lime lightly mixed with the top soil. If the ground be watered with lime water or a 0.75 per cent. solution of ammonium carbonate, the slugs will come to the surface, and may be collected and destroyed. In France ferrous sulphate has been used successfully for the destruction of slugs, the quantity used approximating to 265 pounds to the acre.

Wasps.

Wasps do a vast amount of damage in the fruit garden, and many of the fruit growers depute men especially to seek out and destroy the wasp nests in the vicinity. The workers in the wasp nest, unlike ant workers, perish in the autumn. In the spring, therefore, the only surviving wasps are the females. As each of these may found a nest it is imperative that every effort should be made to destroy as many wasps as possible early in the year. Carbon bisulphide, arsenical preparations, etc., as described above, in the treatment of ants are used for the destruction of wasps. The best method to employ is the following:

Prepare a saturated solution of sodium cyanide; soak half a sheet of wadding in this, and push it into the mouth of the nest. After the lapse of about twelve hours dig out the nest and burn it to destroy the larvae. —Canadian Druggist.

A STRIKING OBJECT-LESSON IN HEREDITY.

The long-looked-for history of the Kallikak family * has at last come from the press of the publishers. Under the auspices of the Training-School for Feeble-Minded at Vineland, N. J., Dr. Henry H. Goddard has investigated and compiled the results of his work in the heredity of this most remarkable family. During Revolutionary days, the first Martin Kallikak (the name is fictitious), descended from a long line of good English ancestry, took advantage of a feeble-minded girl. The result of their indulgence was a feeble-minded son. This son married a normal woman.

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* Goddard, Henry Herbert: The Kallikak Family, a Study in the Heredity of Feeble-Mindedness. New York, the Macmillan Company, 1912.

They in turn produced five feeble-minded and two normal children. Practically all of the descendents of these defectives have been traced as well as those of the two normals.

From both normal and defective descendents of this union came a long line of defective stock. There were 480 in all. Of these thirty-six were illegitimate, thirty-three sexually immoral, twenty-four confirmed alcoholics and three epileptics. Eighty-two died in infancy, three were criminal, eight kept houses of ill fame and 143 were distinctly feeble-minded. Only forty-six were found who were apparently normal. The rest are unknown or doubtful. But the scion of the good family who started this long line of delinquent and defective progeny is also responsible for a strain of an entirely different character. After the Revolutionary War was over, he married a Quaker girl of good ancestry and settled down to live a respectable life after the traditions of his forefathers. From this legal union with a normal woman there have been 496 descendents. All of these except two have been of normal mentality. The exceptions were cases of insanity, presumably inherited through marriage with an outside strain in which there was a constitutional psychopathic tendency. In all the 496 there was not an instance of feeble-mindedness. The offspring descended from this side of the house have universally occupied positions in the upper walks of life. They have never been criminals or ne'er-do-wells. On the other hand, there has not been a single instance of exceptional ability among the descendants of the first Martin Kallikak and the feeble-minded girl. Most of these descendants have failed to rise above the dead level of mediocrity, indeed, most of them have fallen far below even this minimum standard.

The fact that the descendants of both the normal and the feeble-minded mother have been traced and studied in every conceivable environment, and that the respective strains have always been true to type, tends to confirm the belief that heredity has been the determining factor in the formation of their respective characters. In the cities the descendants of the legal marriage with the normal woman are physicians, lawyers and prominent business men, while the descendants of the feeble-minded mother are almost invariably found in the slums. In the rural districts the descendants of the normal mother and her consort are wealthy and influential farmers, while the others never rise above the rank of farm laborers and shiftless men and women who are unable to subsist without the aid of charity. Many representatives of the defective branch are inmates of almshouses, while there are no paupers at all among the normal descendants.

In many ways this study of Goddard's far outweighs in importance the famous comparison by Dr. Winship of the Jukes and Edwards families. In that case the simple fact was demonstrated that a good family like that of the illustrious Jonathan Edwards had given rise to innumerable examples of the highest intellectual and moral worth, whereas the criminal Jukes for seven generations contributed nothing to the common good, and cost the State of New York large sums of money. But the Jukes family and the Edwards family had no ancestor in common. Their environment was totally different and they lived in entirely separate communities. Although from sociologic and economic points of view the history of the Jukes family and its comparison with that of the family of Jonathan Edwards has great value, it is of but scant scientific importance as compared with that of the Kallikak family, for here a natural object-lesson in eugenics shows unmistakably the manner in which after-coming generations from a given mating receive the characteristics of the dominant strain, which in the elder (illegitimate) Kallikak line was the inferior strain, with only a debased and enfeebled heritage to hand on.—Journ. A. M. A.

SCIENTIFIC AND PHARMACEUTICAL NOTES

OVERPLANTING INFECTED AREAS WITH HARMLESS GERMS.

Within recent years considerable success has been had in the treatment of diphtheria through the overplanting of the invaded areas in fauces and throat by means of pure cultures of *Staphylococcus pyogenes aureus*. The Staphylococcus cultures kill off and displace the diphtheria germs, thus aiding in the cure of the disease and also very materially shortening the period of the disappearance of the disease germs from the throat. It is true that in the hands of some physicians and experimenters the results were not very promising, however the consensus of opinion seems to be that the method does give good results generally and that it is well worth trying in cases of diphtheria where the local infection is marked as indicated by the extensiveness of the false membrane.

In the November issue of the *Medical Review of Reviews,* Dr. A. H. Sanford of Rochester, Minn., suggests the use of pure cultures of the *bacillus acidi lactici,* the common bacillus of sour milk, in place of the Staphylococcus. In the limited number of cases in which the sour milk bacillus was tried most excellent results were obtained. It is of course to be understood that this overplanting with the bacillus is merely a local treatment and that it is to be given concurrently with the use of the antitoxin and other recognized modes of treatment. Dr. Sanford calls attention to the fact that the use of the Staphylococcus is not always without danger as the organisms (which are the organisms which cause pus formation in wounds and abrasions) may and do cause more or less serious secondary infections such as otitis media and tonsilitis. The use of the bacterial cultures is quite simple. Pure cultures are suspended in sterile normal salt solutions and sprayed into the throat by means of a sterilized hand spray.

The lactic acid bacillus survives well in the throat and soon crowds out the diphtheria germ because of its more rapid growth. It would appear desirable to use the method in the treatment of typhoid fever and in other diseases due to an invasion of the intestinal tract. A priori reasoning would suggest the use of large quantities of sour milk in the treatment of such diseases. In lieu of pure cultures of the lactic acid bacillus for spraying purposes, sour milk might be used. In order to get results by this mode of treatment (overplanting) in diseases due to invasion of the intestinal tract, as typhoid fever for example, it would be necessary to use large quantities of the pure cultures of lactic acid bacillus and sour milk, given per mouth and in enemas.

COLD PROCESS OF SOLDERING.

This process consists in the use of two alloys, the one of metallic sodium and mercury, and the other of metallic copper and mercury, prepared and used as follows: The flux consists of 1 part of sodium to 50 parts of mercury. This must be carefully protected from the atmosphere in a glass-stoppered bottle. This has the property of amalgamating any metal with which it comes in contact, forming an adhesive amalgam, even on cast iron. The solder proper is made as follows: Dissolve 10 ounces of sulphate of copper in 2 pints of water, and then precipitate the copper by the introduction of strips of zinc. Wash the precipitate in hot water two or three times, drain off, and for every ounce of precipitated copper add 2 ounces of mercury. Add also a little sulphuric acid (say 15 to 20 drops) to aid in the amalgamation of the metals. The finely divided copper and mercury form a paste which sets and becomes intensely hard in the course of a few hours. It should be made up while soft into little pellets and put away. When required for use, first amalgamate the surfaces to be joined by rubbing them lightly with the flux. This is the equivalent of tinning in the ordinary soldering methods. Then take one (or more, as the case may be) of the pellets and warm until the mercury begins to exude at the surface. Wipe off the exuded drops with a clean rag, and drop the pellets into a small mortar and rub until smooth, or about the consistency of prepared white lead. Smear this over one of the surfaces to be joined, and apply the other surface to the latter as quickly as possible. The joint sets so firmly in the course of two and a half to three hours that only a hammer and cold chisel (or a degree of heat sufficient to melt ordinary solder) can separate the surfaces.

For an even stronger and much quicker setting solder, where expense is no item, take the following to replace the copper and mercury (using the same flux).

Silver	8 parts
Tin	10 parts
Bismuth	1 part
Platinum	1 part

Melt together, and cast into an ingot. Rasp to filings, or otherwise reduce to small particles. When required for use, mix about 3 parts of filings and 1 of mercury in a small mortar until it becomes a smooth paste. This sets in about 15 minutes, and can not be made workable again by heat; it must be mixed just as required. The omission of the platinum reduces the strength of the solder, and lengthens the time required to harden to about one hour. The omission of bismuth makes a more granular mass, which is better for filling up crevices. With bismuth it is as smooth and plastic as potter's clay. Joints made by this solder are almost inseparable. It is very valuable in repairing surgical and philosophical instruments, the brazing of delicate springs, and in all cases where the application of heat would be hurtful or destructive.—National Druggist.

Preservation of Simple Syrup.

(P. McG.)—"Will simple syrup U. S. P. keep indefinitely without fermentation if kept in a well-stoppered clean glass container which is only opened occasionally for dispensing purposes?"

If kept in a cool place and the syrup has been properly made, the product is likely to answer all requirements for a reasonable period of time. But the most frequent cause of the fermentation of syrups, perhaps, is the introduction of germs from contact with the air; these, as soon as they find conditions favorable, multiply with great rapidity, causing rapid fermentation. For this reason syrup is best stored in bottles so that not more than a small quantity or sufficient to meet one's daily requirements will be exposed to the action of the air for any great length of time. A simple and practical method of preserving syrups, recommended by Remington and said to be very effective, is as follows: A number of bottles are provided holding not more than a pint each, even when the quantity of syrup is large; the bottles are thoroughly cleaned, and kept hot by immersion in boiling water until ready for use; and a sufficient number of good corks, which have been thoroughly soaked in hot water, and of proper size for the bottles, should be at hand. The syrup should be heated to the boiling point (strained, if necessary, and reheated), and poured into the hot bottles until they are filled to the brim. The corks are inserted by forcibly pressing them into the necks of the bottles, thereby displacing a small portion of the syrup, and are tied down with twine in the usual manner. Then, while the necks of the bottles are still hot (and before the syrup can contract in volume through cooling) they are dipped into melted sealing wax contained in a suitable vessel. By this method the germs which are supposed to produce fermentation are destroyed by the heat, and no air can find its way to the syrup, as the bottles are hermetically sealed. Stock bottles or containers of syrup should be stored in a cool place, and the shelf bottle used for dispensing purposes, should be scalded with hot water and made perfectly clean and dry before filling it up with a new supply of syrup.—Pharm. Era.

Distilled Water in Medical Practice.—It has been shown that certain toxic effects of Salvarsan can be avoided by using freshly distilled water. Ordinary distilled water contains quantities of bacteria and, although killed by boiling the water, the dead bodies of the bacteria caused disturbance in intravenous injection. Of sixteen specimens of distilled water from the stock of different drug stores only two contained less than 100,000 germs, two over 700,000, and one 6,050,000 per C.c. But not only bacteria but alkali from the glass and metals from the retort, etc., may add to the contamination of distilled water. The influence of even minute amounts of these may be harmful. It is known that a thousand millionth part of copper is fatal to a certain fresh water plant, the Spirogyra, and another plant, the Vaucheria, is even more sensitive to copper ions. The author remarks that distilled water is usually kept in large botles, and these bottles can never be thoroughly cleansed. The German Pharmacopoeia's requirement for distilled water is that 100 C.c. on evaporation should not leave more than 0.001 Gm. residue. This amounts to 0.01 Gm. in a litre, and the distilled water is thus merely a dilute solution (1:100,000) of unknown substances. This contamination, the author insists, may modify the effect of drugs, even those taken by the mouth. The chemical tests should be supplemented, he declares, by biological tests with the Spirogyra (to test for metal ions), by bacteriological tests, as for potable waters, and by testing the electric conductibility of the distilled water.—A. Barladean (Correspondenz-Blatt. f. Schweiz. Aertze, Basel, August 30, 1913, through Journ. Amer. Med. Assoc., October 18, 1913).

SHEEP USED TO TRAP SPOTTED FEVER TICKS.

The free grazing of 2,500 head of sheep upon the Bitterroot national forest, in the state of Montana, has been authorized by the Secretary of Agriculture as part of a novel experiment in trapping the deadly spotted fever tick. The forest service and the public health service are working together in co-operation with local sheep growers in this new campaign.

It is the general belief of the leading medical authorities that the mysterious and frequently fatal disease commonly known as spotted fever is spread by the tick *Dermacentor andersoni* which, in parts of the Bitterroot forest, occurs in such abundance that it constitutes a real menace to man and beast. Surgeon McClintic of the public health service died last year of spotted fever contracted during his study of the disease and its control.

The plan proposed contemplates the grazing of two bands of sheep upon the parts of the forest where the tick is most abundant, with the idea that large numbers of the ticks will attach themselves to the sheep. Then, as occasion requires, the sheep will be freed of the ticks by being dipped in an insecticide solution which will kill the ticks without in any way injuring the sheep.

The engorging of the female tick with blood is one of the essential functions of reproduction, and this gorging must of necessity take place upon the larger mammals which serve as hosts to the tick. The U. S. biological survey has reached the conclusion that the great bulk of the fever ticks which become filled with blood get their supply while attached to domestic stock, and that if the domestic animals are freed of ticks by dipping, by spraying, or by some other effective method of treatment, the chances of the infection of human beings will be vastly reduced. Of the different domestic animals the sheep is the most readily handled and the easiest to dip or treat, hence the selection of sheep for use in the experiment.

Similia Similibus Curantur.

Attendant (at baths)—These patients want to know what kind of baths to take. What shall I tell this man?

Director—What's his occupation?

Attendant—He's a speculator.

Director—Tell him to take a plunge.

Attendant—And this woman who is a seamstress?

Director—Show her to the needle baths.
—Baltimore American.

When Man Feels Small.

A man may be nine feet high when he is in a saloon, but you could hide him under a thimble when he has to buy something for his wife in a white goods store.

Man's Little Day.

By W. W. Whitelock.

First thing a fellow knows at morn
He's born;
Then, say at 10 o'clock, the next
He's vexed
By readin', 'ritin', 'rithmetic,
Till sick.
At noon he has to go to work,
Or shirk.
Then 'round 'bout 2, he takes "for life"
A wife.
From 2 till time to bring in lights
He fights
And struggles with his fellow-men,
And then
He sits around a while and thinks,
And blinks,
And when at last it's time for bed,
He's dead.

—New York Times.

THE SODA FOUNTAIN

CRUSHED FRUIT.

Blackberries.

Though a fruit that has been neglected at the fountain, still it is one that makes a delicious drink, and is a trade winner. Prepare them the same as the crushed raspberries, but be careful not to dilute them too much with syrup.

Crushed Pineapple.

The nicest way to handle this fruit is to peel and cut into chunks and then cut them up in one of the small meat cutters that you can secure at any hardware store, but you must be careful to thoroughly cleanse it each time you use it. When properly cut up, cover with sugar and let stand twenty-four hours, then add all the sugar the juice will take up and dilute with simple syrup to suit taste.

Crushed Cherries.

To prepare crushed cherries is a little more work, but, when the dark, black oxheart are in the market, it pays. First stem and then pit the fruit, after which it can be cut fine in the same manner that the pineapple is. Add all the sugar you can and then dilute with simple syrup to suit your needs.

Crushed Peaches.

One of the most delicate and delicious of all fruits is the peach. First peel and then remove the stones, after that crush them as fine as possible. To crush well, peaches must be fully ripe, as green peaches can only be sliced, not crushed, and are very poor of flavor. When crushed add all the sugar possible and dilute with syrup to suit your purpose. Peaches cannot be diluted as much as some fruits, as their flavoring power is not as great.—From the Apothecary.

Oriental Banana Sundae.

Put a banana on an oblong dish. At each end place a small portion of ice cream. In the center place a small ladle of whipped cream. Over one portion of the ice cream pour a little Oriental dressing. Sprinkle the other with chopped nutmeats, and the whipped cream with some grated cocoanut.

Delmonico Sundae.

Place a banana in an oblong dish that has been previously decorated with lettuce leaves. On this place two small portions of vanilla ice cream. Over one portion of ice cream pour some chocolate syrup and over the other some coffee syrup and top each mound with whipped cream.

Banana Fruit and Nut Sundae.

Place a banana in an oblong dish and on each end of it place a small portion of vanilla cream. Between the portions of ice cream put a small ladle of whipped cream. Cover one portion of ice cream with fruit salad or with a little of the several fruits carried. Cover the other with mixed chopped nutmeats. Into the whipped cream drop three or four fresh whole strawberries when in season. At other times a couple of cherries can be used.

Horlick's Malted Milk Cold With Egg.

During hot weather when your customers' appetites are small you can find many who would prefer such a drink to a solid lunch, and it has nutritive qualities greater than many of the light lunches eaten by business men. These may be served in any flavor. Make exactly the same as directed for cold malted milk, only add the egg before shaking, then shake thoroughly, and finish exactly as you would any egg drink.

Horlick's Malted Milk Egg Shake.

This is prepared by simply adding an egg to malted milk shake prepared with or without a flavor. Sprinkle a little spice on top, if desired, and serve with straws same as any other egg drink.

Celery Punch.

Clam juice, 2 teaspoonfuls; liquid beef, 2 teaspoonfuls; cream, 1 ounce; essence of celery, 4 dashes; hot water, enough to fill mug. Serve with spices.

Clam Bouillon.

Extract of clam bouillon, 2 tablespoonfuls; prepared milk, 1 dessertspoonful; extract of aromatic soup herbs, 5 drops; extract of white pepper, 5 drops; hot water, enough to fill mug.

Hot Clam and Milk.

Clam juice is very nice when served entirely with hot milk. This is very rich, but where one cares for clam juice served this way it is almost as good as a little stew. It may also be served using half milk and half water.

Hot Clam and Tomato.

Pour an ounce of clam bouillon into a mug and add a half ounce of tomato bouillon; season to taste, fill with hot water and serve.

Hot Clam Puree.

Pour an ounce of clam bouillon into a mug, season to taste, add a dash of sherry wine and fill with hot water. Top with whipped cream and serve.

Hot Clam and Beef.

Pour a half ounce of clam juice into a mug, add a teaspoonful of extract of beef, a half ounce of cream, a small quantity of extract of celery, a few drops of aromatic soup herbs and a little salt and pepper; fill with hot water and serve.

Hot Temperance Mint Julep.

Put into a suitable cup four cubes of loaf sugar, ten drops of extract of mint julep, one dessertspoonful of prepared milk and fill with hot water; top off with whipped cream and a sufficient quantity of grated nutmeg.

Hot Oyster Malt.

Malted milk, 2 tablespoonfuls; extract of oyster bouillon, two tablespoonfuls; place in a mug and add enough hot water to fill, stirring in the meantime. Season with celery salt and serve with graham wafers. A spoonful of whipped cream may be added.

Standard Hot Cocoa.

Cocoa, eight ounces; corn starch, one ounce; sugar, five pounds; water, five pints. Dissolve the starch in the water brought to a boil and then add the cocoa previously mixed with the sugar. Serve one ounce to a cup, fill with hot water and top with whipped cream.

Phosphates.

Phosphates should be mixed by pouring. Draw the syrup into your phosphate glass (an eight-ounce glass is generally used); the amount of syrup is a matter for your judgment; about an ounce of most syrups is enough. In another glass, draw your carbonated water and pour quickly into the glass containing the syrup, letting the water strike the glass just above the syrup, thus setting the syrup in motion so that with one pouring the drink is thoroughly mixed. A little practice should perfect you in the art.

Never mix a drink with a spoon when you can avoid it, as it liberates the gas, thus making a flat drink.

MOUTHWASH TABLETS.

The following formula is stated to yield a tablet which, thrown into a glass of water, affords a pleasant mouthwash:

Heliotropin	0.01	grams
Garantose	0.01	grams
Salicylic acid	0.1	grams
Menthol	1	gram
Milk sugar	5	grams
Spirit rose		sufficient

Divide into 100 tablets.

In order that the tablets may yield a nicely colored solution, they are colored with eosine, cholorophyll, or indigo-carmine.

The Shortest Story.

The following story appeared in some journal or paper, we do not recall just where, which was given as the shortest complete story yet published, and a challenge is made to "beat it, if anyone could."

He,
She,
Three.

We hereby offer the following as being 30 per cent. shorter:

He,
She,
It.

We repeat the challenge made by our contemporary, "beat it, if you can."

BOOK NOTICES

Elements of Water Bacteriology with Special Reference to Sanitary Water Analysis. By Samuel Gates Prescott and Charles Amory Winslow. Third edition. Rewritten. 318 octavo pages. John Wiley & Sons, Inc.

This is a very timely volume because of the special interest in preventive medicine, general sanitation and food sanitation in particular. The book gives a fairly complete résumé of the subject of water bacteriology, outlining the progress made in the methods of laboratory procedure, winding up with an outline of the methods suggested by the Laboratory Section of the American Health Association, which are now standard in most American laboratories. It is a volume which should be in the hands of all who are interested in sanitation work.

The value of the volume is greatly increased by the liberal use of tables and tabulations. It also contains a very complete author and general subject index. The style is simple and clear, thus meeting the requirements of the amateur as well as the skilled bacteriologist. There are a few rather perplexing typographical errors or peculiarities in style which, however, do not in any wise lessen the intrinsic value of the volume.—A. S.

Annual Report of the Secretary of Commerce, Washington, D. C., 1913.

This is one of the many interesting reports issued by the several Departments of the Federal Government. The one in hand is the eleventh of its kind. It is the duty of all citizens of the United States, and this includes druggists, to inform themselves in regard to the workings of the central Government machinery so that they may be intelligent citizens and may vote intelligently when it comes to filling Government positions. The careful reading of such reports makes it very clear that we should vote for men who are willing to do the work assigned them, and what is equally important, men who are qualified to do the work, as against just ordinary politicians.

The Department of Commerce (formerly the Department of Commerce and Labor) comprises nine bureaus—Foreign and Domestic Commerce, Corporations, Standards, Census, Fisheries, Lighthouses, Coast and Geodetic Survey, Steamboat Inspection Service, and Navigation. Of the 150 pages of this report, 8 are devoted to the Bureau of Navigation. We are of the opinion that the American navigation subject was of such nature as to require at least several volumes to make proper apologies for its many shortcomings. The reading of the eight pages is enough to bring tears to the eyes of the sympathetic citizen. In one instance this Bureau asked for the sum of $10,000 to be devoted to a study of matters of great interest to greater safety in merchant shipping. This small and beggarly sum was not granted by Congress. But then read for yourself and use your voting privileges accordingly.—A. S.

Payne's Dictionary of Pharmacy for Students, Teachers and Examiners. By George F. Payne. 167 small 12mo. pages. Vest pocket size. Published by Geo. F. Payne, Atlanta, Georgia.

This small booklet is devoted to the subject of pharmacy. It contains questions and answers covering pharmacy and allied branches. It is of special interest to those who desire to prepare themselves for board examinations. Dr. Payne's long experience in pharmacy has eminently qualified him to prepare the questions and the shortest and clearest answers thereto.—A. S.

E. Merck's Annual Report of the Recent Advances in Pharmaceutical Chemistry and Therapeutics. Volume XXVI. 1912.

These reports should be carefully studied by all physicians and pharmacists. They contain the gist of the latest advances in therapeutics and in chemistry. Seventy-two pages are devoted to a discussion of lecithin, including a fairly complete citation of the lecithin literature. The closing article is by Dr. R. Heinz on the standardization of digitalis preparations. The rest of the subject-matter is arranged in alphabetical order. To review or even to mention all of the subjects treated would be out of the question in the limited space at our disposal. We would advise getting the volume and reading it very carefully. It is in English as well as in German.—A. S.

The University of the Philippines. Catalogue and Announcements for 1912 and 1914. Bulletin No. 3, issued by the University, Manila, P. I.

The announcement shows that the University of the Philippines is making rapid strides forward. We were especially interested in the course in pharmacy. This is a regular three years' course. The requirements to enter are the same as for the regular academic course. The Ph. G. degree is conferred upon the completion of the three years' course. A four years' course is also given, upon the completion of which the degree of B. S. is conferred. The regular three years' course includes bacteriology, sanitation and hygiene, given during the third year. This department is therefore one of the most progressive of any in the United States or in its possessions.—A. S.

The Treatment of Rheumatic Infections. Issued by Parke, Davis & Company. 134 octavo pages, with general index and citation of literature. 1913.

This report outlines the nature of phylacogens and their use in acute and chronic infections, with special reference to the rheumatism phylacogen. It is a very complete summary of the enormous amount of work done by the Scientific Department of the firm of Parke, Davis & Company, including the clinical observations and reports by numerous physicians. The booklet is of interest to physicians as well as pharmacists, and we would advise securing a copy by writing to the firm.—A. S.

THE NEWS BUREAU OF THE PACIFIC PHARMACIST

THE EXHIBIT OF CHEMICAL AND PHARMACAL ARTS AT THE PANAMA - PACIFIC INTERNATIONAL EXPOSITION IN 1915.

In the Palace of Liberal Arts, at the Panama-Pacific International Exposition to be held in San Francisco in 1915, will be found an exhibit of the equipment, processes and products of the chemical and pharmacal arts that will prove to be not only of great interest to the men and women of those professions, but to thousands of laymen from all over the world.

In the official classification of exhibits this display constitutes Group 36, coming next to the sciences to which it is so closely allied, those of medicine and surgery, which make up the exhibit in Group 35. The chemical and pharmaceutical exhibit is divided into twenty-two classes, embracing every department of these arts. From the most minute detail of laboratory equipment to demonstration of apparatus employed in treating waste matter from factories, by chemical or electrical methods, with a view to permitting their return to water courses or to the atmosphere, there will be presented a complete resume of the progress made in the laboratories of the world, especially during the past ten years.

In the last mentioned department of chemical research the thoughtful, progressive student of the present day will find one of the most fertile and remunerative fields of endeavor. The most recent developments along this line will be thoroughly exploited in this exhibit, especially those pertaining to the treatment of smelter fumes and smoke condensers.

An elaborate demonstration of the various biological products, such as bacterines, vaccines and tuberculines will comprise a class that will be of intense interest to a vast number of people. Equipment and processes used in the manufacture of vegetable essences; in the chemical treatment of animal substances and their products, soaps, candles, glycerine, etc., and the by-products of petroleum and coal tar derivatives are to occupy a prominent place in the exhibit.

Apparatus and processes for the compression and liquefaction of gases, methods of drug adulteration and their detection, perfumes, cosmetics, essential oils and equipment and appliances for producing and storing acetylene gas will all be displayed in detail.

The building in which the chemical and pharmaceutical exhibit will be housed is known as the Palace of Liberal Arts and is one of the eight main exhibition palaces of the Exposition. It abuts on the magnificent Court of the Sun and Stars, the great central court of the Exposition, and covers an area of 251,000 square feet. It was erected at a cost of $344,180 and is a structure of great artistic beauty. The Panama-Pacific International Exposition will be the largest and most wonderful enterprise of its kind that has ever been held by man. It will include among the buildings erected the vast Palace of Machinery, the largest frame structure ever built, covering ten acres of ground; and the whole Exposition represents an outlay of $80,000,000, the greatest sum ever expended for such a purpose.

For beauty of location the site of the Panama-Pacific International Exposition is unsurpassed; and it will enjoy the added distinction of being the only maritime exposition ever held, fronting as it does on the Bay of San Francisco and the Golden Gate, where the navies of the world will pass in review before the Exposition grounds on the completion of their voyage through the canal. This is the event with which the Exposition will open on February 20, 1915, and for the greater part of a year will remain open to celebrate with all the world the greatest single achievement of man—the building of the Panama Canal.

PHILADELPHIA COLLEGE OF PHARMACY.

December 2, 1913.

Editor The Pacific Pharmacist:

We trust that the following item may be sufficiently interesting to give it space in the next issue of your journal:

"The Cultivation of Medicinal Plants" was the subject of an interesting special lecture delivered by Mr. Fred A. Miller of Eli Lilly & Company at the Philadelphia College of Pharmacy on Monday, December 1, 1913.

Mr. Miller said the reason given for the cultivation of medicinal plants was the scarcity of crude material and the desire to improve the quality of vegetable drugs. The chief difficulties encountered in this work are the successful propagation and the procuring of authentic seeds.

Seeds are obtained from various sources, such as, local collectors, agricultural experiment stations, the waste and offal in large shipments of crude drugs and also from large seed merchants.

Weeds are the great evil in raising medicinal plants as well as in other agricultural fields.

Between three and four years of experimental work have been done on Digitalis, Belladonna, Hyoscyamus and Cannabis Indica. The experimental work consists in chiefly trying different fertilizers and soils and also hybridization. The results on the first three of these drugs have been very encouraging and real harvests are now in sight. Cannabis Indica has also shown the possibility of successful cultivation.

Mr. Miller showed a few slides of fields on which actual crops of these drugs were being cultivated.

Very truly yours,
ELMER H. HESSLER,
For the Committee on Publicity.

W. P. A. P. C.

According to custom there was no meeting in December. The January meeting will be held in the Assembly Room of the Pacific Building in the evening of the 23d inst.

Dr. John Uri Lloyd's new method for extracting Alkaloids will be discussed. JENNIE M. WHITE,
President.

Influence of Radio-Active Emanations on Plant Life.

Experiments performed with Pisum arvense, Zea mays, Polygonum fagopyrum, Sinapis alba, and Beta vulgaris, grown in large glass vessels containing air and a small amount of radium emanation, show that the growth is stimulated to the extent of 30 to 90 per cent. over controls grown under identical conditions without the emanation. Small doses of the emanation exert a favorable influence on plant development. The activity of gas exchange, flowering, and fruiting is increased, and the total weight of the growth is greater. Larger doses of emanation have, however, an unfavorable influence on plant life; and cause the formation of toxic substances in the process of chlorophyllosis. Similar results were obtained with plants grown in culture media treated with radium chloride emanation, and in soil watered with artificial radio-active water.—J. Stoklasa and V. Zdobnicky (Comptes rend., 1913, 157, 1,082).

RURAL SANITATION.

Health Hints for Country Homes.

Proper Food.—Do not over-eat. More people die of intemperance in eating than in drinking. Eat slowly and chew well. Bolting one's food will certainly produce indigestion.

Pure Water.—Water may be polluted by surface wash or by underground drainage. Polluted water causes diarrhea, gastritis, cholera infantum and typhoid fever. Do not drink polluted water.

Pure Air.—The lungs need pure, fresh air day and night, winter and summer. Sleep with the windows open. Air out the living rooms frequently, especially in the winter.

Clean Milk.—Dirty and unclean milk makes babies sick. Milk drawn from clean, healthy cows, into clean utensils by clean milkers and kept cool is a good food. Look out for your own babies as well as for those to whom you supply milk.

Good Teeth.—Bad teeth cause debility and mal-nutrition. When teeth are properly cared for, the possessor is stronger physically and is more active mentally. Go to a dentist at least once a year. Brush the teeth at least once daily—at bedtime.

Cleanliness.—A clean body is an important factor in avoiding disease. Wash your hands clean before eating and bathe your whole body frequently.

Recreation.—A gloomy, grouchy, tired-out man or woman can never feel well. We can only live this life once. Take enough time to enjoy it. It will pay because your body will feel enough better afterwards to do better work.

Isolation.—A child with sore throat may have diphtheria or may be coming down with scarlet fever. Keep such a child away from other children, either in the family, at school or at play. Do not allow a child with a cold, whooping cough, measles or scarlet fever to visit or play with other children. Do not allow children or visitors in a sick room if the patient has any disease that the doctor calls contagious. Food that has been in a sick room should be destroyed. Do not allow it to be eaten by children or well people. Do not allow cats or dogs to enter a sick room. The contagion may be carried in the fur.

Disinfection.—When contagious disease is in the house, follow carefully the instructions of the Health Officer about the disinfection of the discharges from the nose and throat or from the bladder and bowels, and of the patient's body and of the premises when the case has recovered. In waiting upon a sick person, come in actual contact with him as little as possible. Wash your hands thoroughly before leaving the sick room, especially before handling food or milk.

Care of Milk.—Typhoid fever and scarlet fever are often conveyed by milk. If you produce or sell milk and either of these diseases is in your family or in the family of a helper, be sure that no one who comes in contact with the sick person is allowed to have anything to do with the handling of the milk.

Vaccination is a preventive of smallpox. Children should be vaccinated in infancy. The law requres that they be vaccinated before they are admitted to school. It is wise for children and adults to be vaccinated again if smallpox breaks out in the vicinity.—The New York State Department of Health in conjunction with the New York State College of Agriculture.

Philadelphia College of Pharmacy.

The fifth Special Lecture of the 1913-1914 series was given at the Philadelphia College of Pharmacy on Monday, December 8th, by Prof. W. A. Pearson, of the Smith, Kline & French Co.'s Physiological Laboratories.

Prof. Pearson introduced his subject, "The Physiological Testing of Drugs," by stating that in the future the cultivation of drugs would be the basis of manufacturing pharmaceuticals. He explained the mechanism of the Kymograph and the String Galvanometer, illustrating, by means of lantern slides, their mode of operation and the results obtained.

After a brief review of the research work on Digitalis, Prof. Pearson pointed out the fallacy of attempting the chemical assay of a drug with such a varied and complex composition. In speaking of the Frog method for testing Digitalis preparations, he commented on all the objections offered against this method, but expressed his opinion that the recent adoption of a standard solution of Strophanthin or Ouabain for comparison of results eliminated these objections, especially, because of the practicability of the method.

The guinea pig and cat methods were thoroughly explained, and in concluding his lecture, Prof. Pearson showed the heart action of Digitalis and Strophanthus upon an anesthetized dog, by means of the Kymograph.

Tests for Adrenine (H. V. H.—55/44).—If a very small quantity of dilute ferric chloride solution be added to a solution of adrenine, a beautiful emerald-green color is developed, which on gradual addition of very dilute caustic alkali becomes purple and then carmine-red. Silver salts and gold chloride are energetically reduced in alkaline solution, the liquid turning red. On treating a minute quantity of adrenine, or a drop or two of the 1 in 1,000 solution, with five or six drops of solution of sodium hydroxide, in a small porcelain ccrucible, an odor resembling that of phosphoretted hydrogen is developed in a short time. The reaction is characteristic, and the presence of very minute traces of adrenine may be detected by its means. Other tests are described in the Codex. The note to which you refer appeared in the P. J., August 31, 1912, page 295.

IT IS TO LAUGH!

OUR SURE CURE.

Listen to this!

A useful laxative and cathartic. An excellent liver tonic. Useful in indigestion and excellent for dyspepsia, and valuable in jaundice and piles, in headache, in malarial conditions and as a general system renovator, and in all conditions of the blood where an alterative is called for. Useful as a heart tonic and in rheumatism and skin and liver diseases and as a building tonic, also in diseases of the reproductive organs and kidney and bladder troubles. Useful as a nervine and in sleeplessness, and in those forms of diarrhoea where an action of the bowels is first demanded. An excellent female regulator. Added to camphorated oils, U. S. P., it makes a good embrocation for boils, bunions, lumbago and gout, and diluted to three times its bulk with water to which borax has been added, it makes an excellent mouth wash and gargle. Mixed with half its volume of chloroform it relieves most forms of toothache. One tablespoonful in a cup of hot water makes a servicable fomentation for troubles of the eye. Diluted with equal parts of Brown Mixture, U. S. P., it makes a good cough remedy. It can be used alone but is also an excellent hair tonic when added in equal proportions to bay rum. Applied to the feet on a rag it is excellent to soothe inflamed corns or bunions; and as a perspiration deodorizer it is also valuable when similarly applied. In proper dosage, about 6 times the dose for a man, it is good as a general alterative for horses, oxen, bullocks, and cattle generally, and in diarrhoea, colic and colds. Combined with thirty days at hard labor it reduces flesh where it shows most. A few drops added to food (meats, eggs, gravies, soups, pies, pastry, etc.) taken six times each day makes the skinny assume a rotund look. Mixed with concentrated nitric acid it removes warts. It is also a depilatory. The Tony Bunko Co., Kickapoo, Mi.

The motor bus stopped and the conductor looked expectantly up the steps. But no one descended, and at last he stalked up impatiently.

"'Ere, you," he said to a man on top, "don't you want Westminster abbey?"

"Yes," was the reply.

"Well," retorted the conductor, "come down for it. I can't bring it on the bus for you."

He Had Seen It.

Classic Dancer—Doctor, I want you to vaccinate me where it won't show in my dance.

Physician—Hum! I'm afraid you'll have to take it internally.—Puck.

A young theologian named Fiddle
Refused to accept his degree;
"For," said he, "enough to be Fiddle
Without being Fiddle, D. D."

By Mail.

The farmer's son came home looking as if he had been through a tornado. His father inquired the cause. The son replied:

"It's that durn correspondence school again. I got a letter from the Sophomores telling me to haze myself."

"The doctor says I must quit smoking. One lung is nearly gone."

"Oh, dear, John! Can't you hold out until we get enough coupons for that dining-room rug?"

None Needed.

Wife—The doctor said right away that I needed a stimulant. Then he asked to see my tongue.

Hub—Heavens! I hope he didn't give you a stimulant for that.

"James," said the efficiency expert, annoyed by the cheerful habit which his chauffeur had of whistling while at his work, "you should remember that the greatest fortunes nowadays are made from the by-products of waste. Hereafter when you whistle, whistle in the tires and save me the expense of a pump."

He Wanted Better Odds.

The first time Bill, the farm hand, ever complained of feeling sick his boss sent him to town with the address of a doctor he knew. Bill came back next day and reported:

"Well, I took my medicine, but not from that doctor you sent me to—no, sirree!"

"Why not? Couldn't you find him?"

"Oh, I found his place, all right, with his name on a brass plate on the door. But underneath the name it said '10 to 1.' I wa'n't goin' to take no such risks as that. There was another doctor next door, and his sign read '8 to 5.' The odds was so much better that I went to him."

PERSONALS AND TRADE ITEMS

No Experience.

A kindergarten teacher was telling about sparrows. "The sparrows eat up the worms," she said. "Now children, which would you rather have, worms or sparrows?"

"I never had sparrows," piped up a tiny boy near the front.

To Our Customers.

San Francisco, Jan. 1, 1914.

The return of goods has reached such proportion that we are obliged to formulate a plan to correct the evil. In addition to the expense of handling returned goods, they are in many instances not in original packages or have seals broken, and therefore not in merchantable condition and cannot be re-sold. As you will readily understand we are the loser as we have no recourse in return of these.

Items returned that are the result of our errors in not filling orders correctly or in failure of our salesmen to get proper specifications as to items, or breakage in transit that is chargeable to poor packing, we are only too pleased to have returned and issue credit note, and in such cases we would request that all such returns or notifications be received by us within thirty days, as we are then able to trace the cause.

To correct the returning of goods where no fault lies with ourselves we are obliged to adopt the following rule: No goods shall be returned to us under these conditions without first submitting a list for our approval, and we also desire, with such list, date of purchase.

Orders taken by representatives of manufacturers and other dealers and turned in to us for invoicing are not subject to return, as we accept these in good faith and at all times we insist upon their being signed by the customer. Non-fulfillment of contracts, verbal or written, should be taken up with the originator of the sale or his representative, and we will at all times be pleased to assist in adjusting any difference if the case is submitted to us with particulars.

Pharmaceutical demijohns or containers

TWO GOOD SELLERS IN SEASON

Cespi Rose Cream

Cespi Cucumber and Almond Cream

Retail at 25 cts.

Write for our Free Goods proposition

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MANUFACTURING CHEMISTS

Successors to Cespi Chemical Co. SAN FRANCISCO

Sylvester's Haarlem Oil

For 200 Years Standard remedy of the world for KIDNEY DISEASES, BLADDER TROUBLE, GRAVEL and all INWARD INFLAMMATION.

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GENUINE SYLVESTER'S HAARLEM OIL

From Haarlem, Holland

None Other is Genuine. Look for "C. Sylvester" on the label

M. Coward, Successor to C. Sylvester
Depot, No. 270 Greenwich Street, New York

that have been shipped out as original packages are not subject to return to us for credit unless same has been charged to you. The pharmaceutical companies will not receive these from us and in the past we have accumulated such a large number that are of absolutely no use to us that we are obliged to make the above ruling.

We regret having to take the above stand in regard to returns, but it is a necessity on account of the indiscriminate returning of goods. A large number of such returns are items that have been bought specially, and which will not be received for credit by the parties of whom we purchase. By return of such items we have accumulated a large stock of unsalable articles.

Yours very truly,
COFFIN-REDINGTON CO.
LANGLEY & MICHAELS CO.

A Kind Husband.

Hubby—Of course, dear, it's only a rough idea of mine, but do you think it's possible that there's ever such a thing as a printer's error in that cook book?—London Opinion.

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A TYPICAL "P.-D." CONVENTION.

For their December posting class Parke, Davis & Co. brought to the home laboratories in Detroit a squad of fifty traveling representatives. These men came from every section of the United States and Canada. The "coaching" period was December 8th to 19th inclusive. Four days were given to a study of the biological and research departments and their work, the remainder of the time being devoted to the general pharmaceutical line. Among the products receiving specific consideration were such leading specialties as the Phylacogens, Pituitrin, Coagulose, and the improved Taka-Diastase. But the convention was not wholly given up to study and instruction. Jack must not be permitted to become a dull boy from overwork. There must be diversion. There was. It assumed a variety of forms. There was a theater party at one of the city's leading playhouses. This occurred on the evening of the 11th. Two days later an excursion was made to the company's biological farm at Rochester, some thirty miles from Detroit, a special car being chartered for the conveyance of the visitors. The "trips to the farm" are "events." They are always productive of interest, instruction and entertainment. A dinner was served on this occasion—such a dinner as the city man looks forward to at Christmas-time when he pays his annual visit to the paternal home. Another dinner party occurred on the evening of the 17th. This was at the Hotel Cadillac, the representatives' headquarters while in Detroit, and included various department heads and others who delivered lectures before the "post-graduate" classes.

It is claimed that some of the eucalyptus of Australia are taller than the California redwoods, hitherto considered the highest trees in the world.

No, my son, the high cost of living and the cost of high living are not the same.

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PRICE CHANGES: The principal fluctuations in the drug market in the past month are as follows: MORPHINE and CODEINE each advanced 50c, QUININE 3c, CAFFEINE 25c, OPIUM 45c higher on unfavorable crop reports. BORAX and BORACIC ACID slight advances noted. CARBOLIC ACID declined 1c, MENTHOL 75c, BALSAM PERU 15c. BUCHU LEAVES short, GUM BENZOIN and MASTIC each 5c higher. SACCHARINE advanced 35c, GUM TRAGACANTH 10c, THYMOL 35c, LAVENDAR FLOWERS 10c. CELERY SEED, ANISE SEED, ALEX. SENNA, SAW PALMETTO BERRIES, MEXICAN VANILLA all slightly lower. MEXICAN SARSAPARILLA advanced 10c, WAHOO BARK 12c, SPANISH ERGOT declined 5c, VALENCIA SAFFRON 25c, NITRATE SILVER 1c, GALBANUM 15c, GUARANA $1.00. CUTTLEBONE, CUMIN SEED, CANADA BALSAM, CREAM TARTAR, WHITE WAX and ALOIN all exhibit small advances. RUSSIAN ERGOT, FLORENTINE ORRIS each advanced 5c, AMERICAN SAFFRON 10c, WORMSEED 10c, RED ROSE LEAVES 30c, MARSH'S CASTOR OIL 4c, LINSEED OIL 2c. In ESSENTIAL OILS the advances are: SANTAL 25c, CITRONELLA 10c, FENNEL 15c. The declines are: CLOVES 10c, LEMON 30c, ORANGE 15c, BERGAMOT 10c, PENNYROYAL 10c, SASSAFRAS 5c.—L. & M.

Alopecia Atrophica.

Dr. Dreuw, of Berlin, states (Deutsch. Med. Woch., 1913, p. 2181) that by alopecia atrophica is understood a disease of the hair-covered head which appears as small or large spots, rarely or never circular, but triangular or many-cornered, sometimes separated but mostly confluent, which without a trace of inflammation or irritation leads through the course of years to a definite atrophy of the skin and to a permanent loss of hair. When the atrophied stage has been reached, therapeutic measures are of no avail. In the non-atrophied beginning stage the following therapeutic measures are recommended:

Internally.—An injection of arsen-sanocalcin two to four times per week, or an iron arseno-fermentin tablet twice or thrice a day.

Physically.—High-frequency current and Röntgen-ray treatment.

Chemical Measures.—Dab the bald places once or twice daily with the following:

Olei rusci (Liq. carbon. deterg. may also be used)...	20.0
B-naphtholi	4.0
Acidi salicylici	4.0
Resorcini	4.0
Spirit. rectificat. ad..........	200.0.—M.

Twice a week shampoo the head with salicyl-sulphur-fermentin soap.

In the evening before retiring rub the bald places with:

Acidi salicylici	2.0
Sulphur. praecipitati	10.0
(or Pyrogallol 1 gram)	
Resorcini	2.0
Adipis lanae anhydros........	100.0.—M.

Pious Parrot.

Customer—But is he a good bird? I mean, I hope he doesn't use fearful language.

Dealer—'E's a saint, lady—sings 'ymns beautiful. I 'ad some parrots wot used to swear something awful, but if you'll believe me, this 'ere bird converted the lot! —London Bystander.

Sales representatives of the Chicago Branch of Parke, Davis & Co., fifty-three in number, were in convention at the Sherman House, in the city mentioned, December 26th to 30th, inclusive. Selling plans for the early months of 1914 were formulated. Lectures upon various phases of the company's elaborate research work—past, present and prospective—were listened to. Discussions of the newer scientific products, together with methods for their systematic detail among physicians, were entered into. Altogether it was one of the most profitable conventions, in all essential details, ever conducted by this aggressive branch of Parke, Davis & Co.

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$4.00 PER DOZEN
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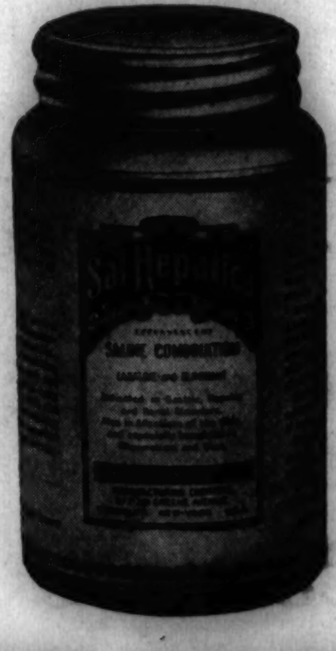

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SEROBACTERINS

(Sensitized Bacterial Vaccines)

"Action **sure, rapid, harmless and durable.**"—A. Besredka.

Serobacterins are suspensions of bacteria "sensitized" by treatment with specific immune serum.

The advantages of **Serobacterins** may be briefly summarized as follows:

1. **SEROBACTERINS do not cause opsonic nor clinical negative phase. In the process of sensitization the bacteria are saturated with the specific antibodies, consequently they do not absorb antibodies from the patient, preventing unfavorable reactions or the so-called negative phase.**

2. **SEROBACTERINS produce immediate active immunity.**

   (24 hours after the first injection an effective immunity is present and marked improvement is usually noted in the condition of the patient.)

This rapid action makes them invaluable in treatment and in preventive immunization. This is of great importance in controlling or preventing epidemics.

3. **SEROBACTERINS cause no local or general reactions.**

   (These reactions constituted the principal undesirable feature of the Bacterial Vaccines.)

4. **SEROBACTERINS produce a highly efficient and durable immunity.**

The following **SEROBACTERINS** are supplied in the popular Mulford Aseptic Glass Bacterin Syringe, ready for instant use.

Staphylo-Serobacterin. (Sensitized Staphylococcic Vaccine.)
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Scarlatina Strepto-Serobacterin. (Sensitized Streptococcic Vaccine Scarlatinal.)

Typho-Serobacterin. (Sensitized Typhoid Vaccine.)

Packages of 4 syringes	**$4.00**
Single syringes	**1.50**

Each syringe one dose.

For a complete review of the literature on Serobacterins, see Mulford Digest for December.

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Open to graduates and others who are properly qualified. The course is intended to prepare the candidate sufficiently to make chemical and microscopical examinations of drugs, drug products and foods in compliance with the Federal and State pure food and drug laws. Drug assaying and other chemical work, the microscopical examination of drugs, spices and food products, and the bacteriological testing of pharmaceutical preparations, water, milk, etc., are among the subjects taught. Those who complete the course are qualified to do work in food and drug laboratories.

The next course will begin September 11, 1914, and end April 30, 1915.

For further information, address FRANK T. GREEN, Dean.

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This is a tale of a **"greater diastasic ferment."** It has a commercial as well as news interest for retail druggists. The "story" is appearing in medical journals over the signature of Parke, Davis & Co.:

"We have doubled the strength of **Taka-Diastase.**

"The foregoing is a simple statement of fact. Seven words are sufficient to express it. But back of these words are years of toil and study. Back of these words are hundreds of experiments—fruitless for the most part, but yielding in the end the long-sought secret.

"We gave Taka-Diastase to the world in 1895, and throughout the nineteen years that have since elapsed the product has been recognized by the medical profession as the most efficient agent in the treatment of amylaceous dyspepsia.

"Potent as it was at its inception, we have constantly sought to improve Taka-Diastase. Once before we enhanced its value fifty per cent. Now, by other improvements in the process of manufacture, we are again enabled to increase its liquefying power, this time multiplying its efficiency by two.

"Our improved Taka-Diastase will liquefy 300 times its weight of starch in ten minutes under proper conditions.

"In all of our Taka-Diastase preparations—liquid, powder, capsule, tablet—as well as in the several combinations with other agents (both capsule and tablet)—the high-potency product is now being used.

"We have not advanced the price."

This means business for the prescription department.

To Near Home.

Mr. McGuire (to hospital attendant)—Phwat did ye say the docther's name was?

"Dr. Kilpatrick."

"Thot settles it. No doctor wid thot cognomen will git a chance to operate on me—not if I know it!"

"Why not?"

"Well, yez see, my name's Patrick."

Lawyers Defined.

"A lawyer," says Uncle Abe, "is a feller what gits two men to strip fer a fight an' then runs off with their clothes."

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Officer (to recruit who has missed every shot)—Good heavens, man, where are your shots going?

Recruit (nervously)—I don't know, sir; they left here all right.

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Having established a Drug Store Exchange, I offer my services to my clients in finding a buyer for a business or a business for a buyer. I have a good list of Drug Stores for Sale and adding more daily. Also a list of prospective buyers which I am trying to satisfy. Over fifty years in the Drug Trade in California.

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TRUTH IN SLANG.

By D. L. FIELD, M. D.

Once upon a time there hybernated on this dot on the Hoosier map, a pill vendor who broozed the legend, "Chronical Diseases Treated;" and by that sign he caught suckers, whose think tanks were as empty as the mountebank's claim. Diseases baffling science were dead easy to Esculapius No. 2. He sported a personality of peculiar attractiveness, which was that he was so round shouldered that his dome of intellect could hardly be seen from a rear view. His hirsute embellishment was a thing of beauty. How many deadly germs he carried in this patriarchal appendage cannot be estimated. His moustachios, the receptable of soup, amber, and other odoriferous and oleaginous additions, afforded a screen against a snaggy food receiver.

"Doc" Kotchum was "larned," and as a diagnosticator, he thought he was the real goods. He was dazzling in his gifts when it came to discovering unheard of diseases; but if there is one thing the average idiot is proud of, it is the distinction of having something no one else ever had. If you appeal to "Doc" K. you can take the flattering unction to your soul, that you've got it, good and bad.

Doc was a botanist who would make old Linnaeus look like a "cheap scad." His long suit was "native herbs," but he didn't have to know where they natived. Some of Doc's most potential life-savers were derived from the laboratory of the cow-pasture and the sheepfold. The product of the latter was a sure cure for putrid sore throat. When Doc perambulated in his capacious cow-hide boots, he made as much noise as the tramping of a horse in an upstairs livery stable. His plug contained, besides a flamboyant bandanna, an abundant supply of powderpapers, and accounts against tardy customers. Doc was bifurcated more than half-way up; and when he bestrode Pegasus, his pedals almost dragged the ground.

Doc's vocal capacity was of the stentorian variety, and if he encountered a nervous female abed, his vocal feats would throw her into a fit of hystero-epilepsy. But then Doc was the original "fit vanquisher." No one ever "threw a fit" after Doc got in his skillful work.

Doc came dangerously near emasculating a boy for a metastatic mump tumor. Doc's surgical outfit consisted of tooth-pullikens, and a scalpel. He carried his surgical and dental instruments, in a reticule. When he got his clamps on a molar, it was a rare good fortune to the victim, if his jaw-bone didn't come too.

The odoriferous onion poultice was a favorite with him, and in angina of the throat he would envelop the croupy victim with an enormous one. He feared the cold affusion to croupy throats; as he believed it would be death and destruction.

Remarkable to tell, his patients sometimes survived his heroic treatment and his bungling.

JANUARY.

This is a good time of year for druggists to look over their stock of Prescription Bottles. Langley & Michaels Company is specializing in a large way in a new line of prescription ware and have three very desirable styles of Ovals under the names, **"Yosemite," "Marvel" and "Reliance,"** which are supplied either with or without graduations. This house is also prepared to execute orders for private lettered plate ware for dealers who prefer such, with unusual promptness in delivery and at exceptionally low prices. Their advertisement relating to this class of glassware will be found on another page of this issue of the Pharmacist, and should prove of interest to our readers.

There is promise of a large turpentine industry in the west and southwest, the raw product being supplied by the resinous gum of western yellow pine.

German pencil manufacturers are looking to California incense cedar for pencil wood. The establishment of a pencil factory in California is not improbable.

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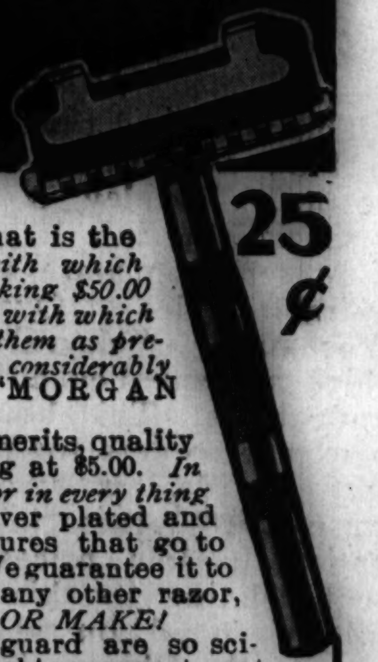

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IF YOU want something that is the thing right now—*an article with which many Agents and Dealers are making $50.00 to $75.00 a week, net profit, and with which many concerns, who are giving them as premiums, have increased their sales considerably* —get acquainted with the "MORGAN DANDY" safety razor!

A razor guaranteed equal in merits, quality and appearance to any selling at $5.00. *In fact, it's a FIVE DOLLAR razor in every thing but an expensive box;* triple silver plated and contains all the essential features that go to make the shaving qualities. We guarantee it to shave as good, *or better*, than any other razor, *IRRESPECTIVE OF PRICE OR MAKE!*

The angle of the frame and guard are so scientifically adjusted as to enable anyone to get the best results and insure absolute safety, *even if a man has never shaved himself before.* The steel of the blade is the best—specially ground and tempered. *Every blade is hair tested and inspected.*

YOU WANT THIS—

regardless of whether you are an Agent, Mail Dealer, Premium User or a Local Dealer, or what your occupation or profession may be, if you are a man with the "Get There" spirit, you want this because you can make big money with this razor and we want you to write for wholesale prices, copies of show cards, circulars and other matter furnished with imprint.

Enclose 25 cents for sample razor, which amount may be deducted from first order or, *if you don't think our "MORGAN DANDY" shaves as good, or better, than any other razor, we will send your quarter back.*

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For Sale.—Drug store in San Francisco. Elegant fixtures, clean stock and good location. Several good offers in this city.

For Sale.—In Sacramento; a good proposition for an active man with five or eight thousand dollars.

For Sale.—Country drugstores from $1500 to $1600. Small drug stock and physician's practice in mountain town. Good place to make money and to keep it.

Wanted.—A good drug store in busy town at from $3000 to $5000. Must bear close investigation.

Wanted.—Physician wishes to buy half interest in a paying drug store, where he can become an active partner. Will invest about $2500.

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Bubonic Plague Rats Found in Seattle.

The first rats, infected with bubonic plague, to be found in Seattle in the past two years, were caught the other day by the health department in an old building now being demolished at 116 West Jackson street. The finding of the rats caused Laurence J. Colman, owner of the building, to announce that he would wreck the structure and erect on its site a modern steel and concrete structure.—Seattle Municipal News.

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We have doubled the strength of Taka-Diastase.

By an improved process of manufacture—a fortunate discovery, after years of experimentation—we multiply by two the medicinal efficacy of this greatest of agents for the treatment of starchy indigestion.

Our improved Taka-Diastase will liquefy 300 times its weight of starch in ten minutes under proper conditions.

"Every desired form."

We are now supplying this high-potency product in all of our Taka-Diastase preparations—powder, liquid, capsule, tablet—and in the various combinations with other agents (see pages 174-175 of our current catalogue).

There is no advance in price.

◆ ◆ ◆

The attention of every medical practitioner whom we can reach will be directed to the improvement in our Taka-Diastase preparations. This means prescriptions. Be ready to fill them.

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